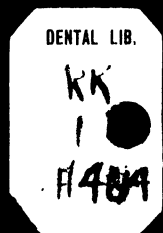
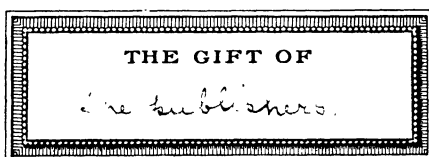
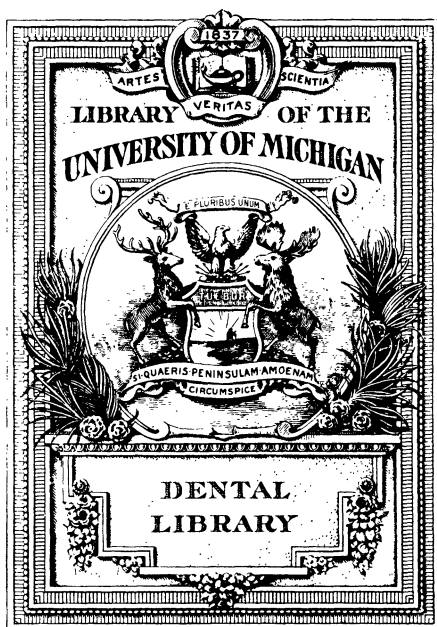


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OUR POST GRADUATE COURSE

OPERATIVE DENTISTRY.

BR R. B. TULLER, D. D. S.

DISCOLORED TEETH.

The causes of discolored teeth are several, and the dentist, or a dentist, is too frequently to blame; especially in the lack of good judgment in the remedies selected to treat root canals. Many things, excellent as antiseptics, are a menace to the natural color of a tooth, if injudiciously used or used at all in tooth treatment.

The most common cause of the discoloration of tooth structure is probably pulp decomposition. This, of course, cannot be attributed to the dentist, unless it be that his manipulation has caused the death of the pulp. Even then it is usually the neglect of the condition that follows that produces the discoloration, which is much more often the fault of the patient than the dentist.

Too often the work the dentist is trying to do conscientiously and skillfully is complicated or rendered nil by the neglect of the patient who thus fails to carry out his part, which is as essential to success as the part that the dentist has to do.

It happens sometimes, however, that teeth take on a pinkish tinge very shortly after some injury which causes death to the pulp, and before decomposition sets in. This, no doubt, is due to the coloring matter of the blood corpuscles which by certain agencies may be caused to pass into the dentinal tubuli. This pink coloring, however, will change and become darker or brownish and reflect through the tooth structure accordingly. Teeth may be discolored both by pigments that simply enter the tubuli, and also by the use of agents in treating that actually discolor or stain the cementing substance that lies between the tubuli. So it is here, in what the dentist introduces in a remedial way into a tooth, that great care and understanding must be used. Silver nitrate, while a great neutralizer of septic conditions under certain circumstances and conditions, should

never be introduced into the interior of a tooth. This substance will readily stain the cementing substance referred to lying between the tubuli. Some of the essential oils, such as oil of cassia, which have in the past been liberally used in canal treatments, and advocated by instructors, have been found to be pernicious in the coloring matter they contain.

It is unnecessary here to go into the details of opening into the putrescent chamber or root of a tooth; suffice it to say that it should be done with every antiseptic precaution, and so as to allow the introduction of no substance whatever except that which the dentist desires to introduce; although it may be proper to state that not a few practitioners of experience do not hesitate to open into such chambers without the rubber dam in place, and permit the patient to go a day or so without even a dressing, for the purpose of permitting a free exodus of pus and gases. The contention is that it then is in the same condition as hundreds of other cases which present, where the chamber was already opened by decay, and is handled the same way with no undue complications. The author would most certainly prefer to protect with the rubber dam, evacuate the contents, wash out carefully with antiseptics, avoiding anything that would be likely to force any of the contents beyond the apex, and secure all safely from external influences, after dehydrating with chloroform or absolute alcohol and leaving in a gently placed dressing of Dr. Buckley's formocresol in the roots or chamber. Nothing certainly is gained in the way or repairative ends by leaving a chamber open; but the emergency of the case may sometimes determine that course, when, for instance, the patient presents at an unseasonable hour, when an opening is made to relieve distress, and nothing further can well be done. The avoidance, however, of the needless entrance of the fluids of the mouth into the interior of the tooth may play an important part in the matter of discoloration. It is a wise rule to follow, to keep out everything but that which is understandingly and intelligently introduced. And again it is wise to select as remedies only such things as are well known not to exert any discoloring influence.

In filling roots, when everything is ready for that operation, it would seem consistent here, too, to avoid anything with a coloring in it, that, finding its way into the tubules of the teeth, might exert a deleterious influence. Pink base plate gutta percha in the form of

chlorapercha and root canal cones, have been very generally used in root filling, and has proved, in capable hands, as among the best. Pink gutta percha, if the author is correctly informed, is purer in gutta percha than white. Like rubber, the lighter it is, the more of a foreign substance is introduced. However, in root filling value the difference between pink or white would cut no figure. But if the color of the tooth subsequently is to be taken into consideration, the nearer the color of the tooth (or material perhaps a lighter shade, even) should no doubt be used; though as a rule in such cases, only the upper end of the root is filled with gutta percha, and the rest of the root and chamber is filled with oxyphosphate or oxychloride cement; usually lighter in color than the natural color of the tooth. In such a case the author cannot see as it would make much difference whether pink or white gutta percha was used.

When it is found that bleaching must be resorted to, the first thing to decide, if possible, what was the cause of discoloration; and then determine if one can what the chances are of successfully restoring the natural color. These things must be intelligently considered to enable a selection of the proper bleaching agent.

There are, of course, a number of methods together with different substances, in bleaching teeth. They are all chemical processes, and should be conducted with exactness and care; and one feature to be observed is to use no iron or steel instruments about the work or other metal which is easily affected by chemicals. It may not be safe to use steel clamp.

The preparation of the tooth to be bleached, is first to have the root filled or sealed at the apex. The rubber dam should be safely adjusted to permit of no moisture about the cavity and prevent the chemical agents from coming in contact with the soft tissues. The dam should embrace at least one tooth on either side of the one to be bleached, and better still if two on either side are embraced. Root filling should be well removed to permit the bleaching agent to get well into the root, but the apical end must surely be closed. The tooth should be washed out carefully with absolute alcohol. (95 per cent alcohol can be easily made absolute by the introduction of plenty of commercial or cooking gelatine.)

The use of 25 per cent ethereal solution of Hydrogen Dioxide—or caustic pyrozone obtained in sealed glass tubes—is the chemical

we shall give here as the bleaching agent. This substance being caustic has to be handled with care. In opening the sealed glass tube it should be held in a napkin which has been dipped in ice cold water especially in summer time. With a sharp three cornered file—not a dull one—the point of tube should be nicked and then it may be snipped off with a pair of pliers, breaking squarely. Keep contents from getting on hands or elsewhere, except where wanted.

The tooth should be wiped off inside and out with a pellet of cotton wet with a solution of soda bicarbonate, or borax water, and then the hydrogen dioxide should be introduced in root and chamber of tooth on loose clean cotton and evaporation hastened with blasts of hot air. No metal, unless pure gold or platinum, should be used to place cotton. A broach or wire of platinum is desirable to carry the cotton up in the root. Glass may be used to carry cotton, but, of course, that cannot be used in the cavity, but do not be tempted to use a steel broach or pliers.

The application should be made several times and evaporated, wiping off the tooth and moistening the cavity each time with the alkaline solution before introducing the dioxogen. In some instances it may be found advisable in the end to hermetically seal in an application and leave it for 24 hours. This is best done by removing excess of solution with cotton and with edges of cavity dry use good bare plate gutta percha, taking pains to seal.

When the case returns it is important that rubber dam be adjusted again, and the tooth be cleansed with alcohol; and after removal of bleaching agent and drying. If color is satisfactory the filling should proceed by using first a paste of precipitated calcium phosphate and distilled water covering all exposure of dentin. This may be hastened in hardening by use of warm burnishers. Remove excess and use a light quick setting cement to cover the first and to serve as a ban for the final filling.

If the secretions of the mouth can get to the interior of the tooth again through improper or leaky fillings, discoloration to some extent, is likely to recur again.

(To be continued.)

Our Foreign Department

THOMAS L. LARSEBUR, D. D. S., Foreign Department Editor

CHANCRES OF THE LIP AND THE TONGUE.

BY PROFESSOR GAUCHER.

(*Le Monde Dentaire*, Paris, Sept., 1909.)

1. Chancre of the Lip.

This chancre is usually single, occasionally multiple.

Manner in which it may be contracted.—Most commonly, this chancre may be contracted from a kiss (honestly); it is to be remembered and observed that mucous patches will escape notice or appear of having no importance. It may be contracted from numerous causes.

Location.—It may appear on the skin, on the lips or on the mucous membrane.

(a) *On the skin:* The chancre is hypertrophic, projecting and sometimes it is incrustated and hard.

(b) *On the commissure of the lips:* The chancre is generally “*fissurique*” (Gaucher), owing to the fissures of the skin at that region.

(c) *On the mucous membrane:* The chancre on the mucous membrane may have two different aspects; sometimes, it will appear as a simple erosion having an indurated nodule; and sometimes, it will appear as a true ulceration (which in some cases is covered with a pseudo-membrane). It may appear both on the skin and on the mucous membrane. The chancre may become phagedenic, but the gangrene will only be superficial.

General symptoms.—There always is ganglionic enlargement. One ganglion is painful and affected with gangliitis.

The chancre of the upper lip is usually seated in the angle angulo-maxillary.

The chancre of the lower lip is also seated in the angle angulo-maxillary.

The chancre which appears at the medium line of the lip has its ganglion under the chin; it generally is painless, but somewhat interferes with the functional movements.

Diagnosis.—It sometimes offers difficulties. The bacteriological examination may be of assistance.

Difficulties in the diagnosis may vary whether we are dealing with a chancre of the skin or of the mucous membrane.

Chancre of the skin.—The differential diagnosis must be made between:

(a) *Epithelioma.*—I will here cite to you the case of a young man who was treated for an ulceration that had the resemblance of a chancre, and which was accompanied of a characteristic ganglion. The mercurial treatment which he followed did not seem to change the condition and roseola did not appear.

There is a ganglion in both cases. Biopsy was made and it proved that there was no epithelioma in this case.

From this it may be seen that a correct diagnosis is very difficult.

However, here are the peremptory signs in favor of epithelioma:

(a) The subject is generally aged, although he may be young.

There is generally pain (but the chancre may also be painful).

The epithelioma bleeds readily, and becomes covered with fungosities.

(b) *Furunculus.*—In this case, the diagnosis is easily made. Furunculus is an inflammatory tumor which is readily healed.

(c) *Suppurative folliculitis barbae.*—Whilst in the suppurative folliculitis there is no agglomerate ulceration, in the chancre underneath the folliculitis, there is a chancre.

Chancre of the mucous membrane.—The diagnosis is to be made between:

(a) *Epithelioma.*—In this case the tumor bleeds readily and is formed of several pimples.

(b) *Tubercular ulcerations.*—Instead of having a round shape, they are very irregular, decidedly painful, will appear spontaneously and also when the membrane is under motion. Their surface is spread. Round the ulceration there are small yellow points of "Ri-

cord" or "Trelat." They are termed tubercular granulations. Furthermore, auscultation and research for the bacillus of "Koch" will confirm the diagnosis.

3 (c) *Mucous patches*.—They are superficial (but sometimes they may be deeply seated); these lesions do not penetrate the mucous membrane. There is no enlargement of the glands.

II. Chancre of the Tongue.

They are found under several varieties:

(a) It may be a *simple erosion with an indurated base*; an ulceration which is regular in shape, rounded, particularly red around the borders, which are smooth.

(b) This chancre may be *ulcerous*. In this case, most commonly there is loss of substance and this loss of substance is covered by a secondary pseudo-membrane, which thus forms a secondary pseudo-membranous chancre.

In both cases the chancre rests upon an indurated base.

(c) The chancre may have *fissures*; this fissure is elongated in the antero-posterior direction varying in length, and having more or less depth. This variety is one of the most easy to diagnose. All fissure which is located at the centre of the tongue and having an indurated base is a chancre of the tongue.

(d) The chancre may be *hypertrophic*.—It is located on the dorsal part of the tongue, this chancre is raised higher, it is a tumor surrounded of diffuse sclerous induration. Phagedena may also be found (Fournier).

This chancre is accompanied of unique ganglionic adenopathy in the sub-hyoid region.

Diagnosis. (a) *Mucous patches*.—This diagnosis is sometimes difficult. The mucous patches are superficial, but they are multiple lesions.

They may be diphtheriod, ulcerous, but *they have no induration*. On the tongue, mucous patches have a special aspect; they are red in color, smooth and have a furrowed appearance.

(b) *Syphilitic gumma*.—When ulceration takes place, it may resemble an ulcerous chancre which has succeeded to a tumor, but there is no engorgement.

(c) *Soft chancre*.—The soft chancre of the tongue exists. It is

a grayish ulceration, purulent, having no induration, and having no ganglionic engorgement.

(d) *Tubercular ulcerations*.—They are multiple, when they are located on the tongue or on the lips; they are very painful and will develop readily and extensively. Yellow points of "Ricord" will be noticed; there is no engorgement.

A slide examination will help in the diagnosis.

(e) *Epithelioma*.—Here, the diagnosis is easy with one exception, and that is when dealing with the lips; in fact, epithelioma is generally preceded by leukoplakia. The age should always be remembered, as this affection does not exist in younger subjects.

The ulceration is hard, cartilaginous, and the induration is large in size.

The movements of the tongue are much interfered with, giving the patient a special nasal tone to his voice; the patient snuffles.

The cancer of the tongue is very painful and reflex pain is felt in the ears.

The only analogy between the chancre and cancer is the ganglion, which is to be found in both cases.—(*Journal des Mediciens de Paris*.)

ANGIOMA OF THE INFERIOR MAXILLARY.

BY DR. M. MORESTIN.

(*Le Laboratoire et le Progres Dentaire Reunis*, Paris, Nov. 29, 1909).

I have had occasion to observe one case of "Angioma of the inferior maxillary" in a young woman, 26 years of age. This affection is very rare, for if a certain variety of *pulsatile* tumors of the bones are commonly met with, they really are nothing else but sarcomas or pulsatile endotheliomas and are not classified as real vascular tumors.

In the case above mentioned, the tumor appeared four years ago under the form of a sub-gingival tumefaction causing the absorption of the gingivae of one of the teeth.

The tooth so affected was removed by a dentist, and the hemorrhage which followed was so profuse that it almost proved fatal to the patient. The tumor went on increasing in size and causing more recession of the gingivae and the loss of more teeth.

A physician thinking he was dealing with a periostitis practiced an incision which resulted in a severe hemorrhage. Gradually the tumor offered beats which became more and more distinct.

Upon examination of the tumor, I noticed the intermittent and uneven breathing which is found in cases of aneurism. Under pressure, the tumor would diminish in size. No ganglioma could be found and the general condition of the patient was normal. I then took this for a case of true aneurism of the inferior maxillary and proceeded with the operation. Although the Ex. carotid artery had been previously ligatured, the hemorrhage was dreadful.

The corresponding half of the maxillary was resected, and the patient recovered.

The examination made by M. Letulle, of a section, proved that it was a true case of angioma.—(*Societe de Chirurgie*, Oct. 27, 1909).

A SIMPLE METHOD OF TREATING CERTAIN FRACTURES OF THE MANDIBLE.

BY H. P. PICKERILL, M. B., CH. B., B. D. S. BIRM., L. D. S. ENG.,
DIRECTOR OF THE DENTAL SCHOOL, AND PROFESSOR OF DENTISTRY IN
THE UNIVERSITY OF OTAGO.

(*The Dental Surgeon*, London, Oct. 30, 1909).

The method to be described is especially applicable to fractures at the angle of the mandible or in the region of the last molar tooth.

For various reasons it may be undesirable in such cases always to cut down from the outside and wire or screw the fragments in a position; the only treatment then consists in fixing the mandible to the maxilla in its normal position and maintaining it so until union has occurred.

This fixation may be attempted by means of a four-tailed bandage or some modification of the same, which usually fails to immobilize the jaw, and is, moreover, exceedingly uncomfortable for the patient. Interdental splints are of practically no use in such cases, as they fail to secure the smaller fragment and cause too much separation between the upper and lower jaws, which separation may possibly be permanent.

The following method has one of the above disadvantages, and

has the merit of being so extremely simple that no specialized skill is required in its application, and it can be carried out in a very short time and without any special appliances.

It consists simply in fixing the lower to the upper jaw by means of horizontal ligatures passing around the cervices of two or more teeth in each jaw, the ligatures being securely connected by a third vertical ligature.

These ligatures should be of silver-gilt wire, but copper or German silver-gilt or gold may be used. (Gauge 21 or 20, B. W. G.) The premolar teeth are the most suitable to which to affix the ligatures; they are not so far back to be inaccessible, and the comparative narrowness of their necks makes them suitable for holding the horizontal ligatures. All three ligatures are first applied loosely. The horizontal ligatures are next tightened by twisting the wire. The lower teeth are then made to articulate absolutely accurately with the upper teeth, and whilst in this position the vertical ligature is tightened.

Ligatures should be placed on both sides of the jaws, as otherwise a small lateral movement may be possible. The method may be used as a temporary measure in all kinds of fractures of the mandible, in which case ligatures of silk or silk worm gut may be placed around the anterior teeth. This affords the patient much relief, and is much more reliable than a four-tailed bandage. The method may also be used as an adjunct to the open surgical methods of wiring the fragments, when fixation of the temporo-maxillary joint may be desirable for a time at least. Even if all the teeth are present, the patient does not suffer from inability to take sufficient nourishment.

There is always sufficient space between the teeth and behind the last molars for liquid food to pass. Patients do not suffer very much from a diet of milk, porridge, arrowroot, soups, etc., for five or six weeks. In a similar way a patient can use an antiseptic mouth wash and use the tongue as a tooth brush on the lingual surfaces of the teeth.

The vertical wire ligature may be left on for a month, after which it may be removed and passive movements allowed; it may be replaced by silk ligatures, as being easier to apply. A vertical ligature should be continued until the sixth week, especially during the time or times the patient sleeps, in order to prevent yawning, as

the latter does far more harm than even a slight amount of mastication.

The method is, of course, only applicable to those cases in which there is a sufficient number of sound teeth present, but such fractures usually seem to occur in strong, vigorous patients with a good set of teeth.—*British Medical Journal*.

METHODS OF MANAGING ROOT-CANALS (SOME NEW, SOME OLD).

(*The Dominion Dental Journal*, Toronto, Canada)

There are two extreme positions taken in the management of pulp-canals where the pulp has been recently devitalized. One extremist removes all the pulp tissue in every case and fills the roots to the apex and no further, with some non-irritating, non-absorbable material, and seldom has a failure. The other extremist removes only the bulbous portion of the pulp from the pulp-chamber and in its stead places a mummifying paste which he says prevents infection forever. No failures recorded.

Extremist Number One sets himself a high ideal, but surely he deceives himself when he thinks he can remove all the pulp from all roots. He simply does not know the anatomy of all the roots. He sets himself an impossible task. If all the pulp could be removed, is it quite possible to fill all the root-canal from which the pulp has been removed.

What of Extremist Number Two?

He has not the technical skill to remove the pulp from even moderately large canals, and then sets about to get a reason for not removing any of it, the chief argument being that he has had no failures. This statement is usually made from memory and not from records of cases.

From what we know at the present time, there is a middle ground. We do know that dead tissue or dead organic matter is almost certain of infection and decomposition when kept moist at body temperature. It may be asked where the infection could come from in a root-canal, once filled and covered with a metallic filling. Numerous experiments have demonstrated that there are no root-fillings which will mechanically prevent the passage of bacteria. Be-

sides this, there are few metallic fillings and no content fillings which will occlude bacteria.

It is also true that whatever disinfectant root-filling may be used, sooner or later it loses its potency, and canal contents are liable to infection. Then since neither mechanical nor disinfectant methods are at all certain, the one remaining plan of defeating infection is to first remove all the material in the form of dead tissue, so that bacteria will have nothing from which they may obtain nourishment. It is also possible that if a canal is left open, that exudations may enter and these later become infected. To avoid this as far as possible, the canal should be as nearly as possible filled with something indestructible and non-irritating; thus one element, that of quality of infectious material in the canal, will be excluded. To conclude, remove all the pulp and put in its place something which will entirely fill the canal and not be lost by evaporation or solution. At present, the most universally used material is chlora-percha, followed with gutta-percha cones. Pressing the gutta-percha well into the canals without heat. Cover this with oxy-chlorid of zinc. This filling has shown itself to be the most resistant of any in common use.

MAYRHOFFER METHOD.

Dr. Mayrhofer, of the University of Innsbruck, Jena, has written an extensive treatise on gangrene of the dental pulp. He has demonstrated to his satisfaction that pus-forming bacteria penetrate the tubules of the dentine and when a canal has once become infected from a gangrenous pulp, that it is almost impossible to free the dentine from bacteria. A root canal may thus be treated, and apparently quiescent and filled, only to become the seat of infection again, though the canal has been filled. Disinfectants, the author says, do not penetrate the tubules, and as soon as they have lost their potency, re-infection occurs. No mechanical filling will sufficiently seal the openings of the tubules, or even the root canal to prevent bacteria poisoning. The author suggests filling the root canals with Balsam-of-Peru, which is a non-volatile fluid with some disinfectant properties. He claims that the liquid will not lose its bulk or its potency or irritate the tissues. It is easy of insertion, but has the decided objection of being easily disturbed when the canal is opened at a subsequent date for any further operation upon the crown. It

is suggested by the Editor of the *Cosmos* that this method of treatment has behind it much scientific investigation. From the meagre reports at hand, it would be unwise to express an opinion; but if the facts for the basis of the practice are as stated, many flaws exist in the basis upon which the conclusions are drawn.

CALLAHAN TREATMENT FOR CONSTRICTED ROOT-CANALS.

In such canals as are not funnel shaped, in molars or bicuspid, Dr. Callahan recommends the use of a "Gates-Glidden" drill to open the mouth of the canal, using as large a drill at first as possible, and then a smaller one afterwards. In this funnel-shaped opening put a forty per cent solution of sulphuric acid and with the largest Donaldson broach that will enter the canal, begin pumping, enlarging the canal as far as possible with the broach. Adding fresh acid and manipulating until an obstruction is met, then with cotton on a smooth broach introduce a saturated solution of sodium-bicarbonate. The effervescence which follows will carry particles of debris out of it. The obstruction may be pulp tissue which has been rammed into the canal by the broach, or the constriction at the apex or another constriction in the canal. A canal should be sufficiently enlarged to receive a No. 5 Donaldson broach and with it particles of sodium potassium, carried down the remaining pulp tissue, which will be dissolved and broken up. More sulphuric acid and bicarbonate of soda can be used, which will carry out any remaining dissolved tissue.

HOW TO MAKE CHLORA-PERCHA FOR LUBRICATING ROOT CANALS.

(*Dominion Dental Journal*, Toronto, Canada, December, 1909).

Select a jar which will hold about two to four ounces, and about three parts fill it with pink base plate gutta-percha, cut up into squares or strips small enough to settle well into the bottom of the jar.

Pour over this enough chloroform to fully cover the gutta-percha. Allow to stand for a few hours closely covered. By this time it should be fully liquid; if not, add more chloroform. Shake well, and much sediment will be found to fall to the bottom.

Gutta-perchas which we now have are loaded with oxide-of-zinc and other materials which are not suitable ingredients of a chlora-

percha for filling root-canals. To remove these, strain through some cheese-cloth into a bottle with a wide mouth and an outside cover, which is not so likely to become smeared as a cork which fits inside.

Finely ground thymol crystals may be dissolved in chloroform or dumped into the liquid before dissolving. Use about two or three drachms of thymol to the ounce of gutta-percha.

As the chloroform evaporates, add oil of cadjaput to keep it liquid. After some months the chloroform will be evaporated and the gutta-percha will be held in solution by the oil of cadjaput. This chlora-percha will be ropy and tenacious, not so short-grained as that which is made from base-plate gutta-percha unstrained.

TIC-DOULOUREUX.

(*Nord Médical*, Nov. 1st, 1908.)

Bettremieux reports a case of facial tic seen by him first in 1897, lately seen again, and found to be without recurrence. The patient was an accountant who had previously submitted to resection of the alveolar ridge, which had given him only nine months' relief. Bettremieux, fixing his attention on the usually neglected symptom of lachrymation, found obstruction of the lachrymal duct in both eyes, although the pain affected only the right side of the face.

He catheterized both ducts thoroughly, and followed up the procedure by antiseptic injections. Improvement was felt after two or three days, and complete relief in a few weeks. Two years afterwards a slight recurrence took place and was relieved by the same means, since which time the patient has been radically cured. As tic-douloureux is said to be incurable, Bettremieux has published this case, with the advice that when trigeminal neuralgia is associated with lachrymation, permeability of the lachrymal ducts, and subsequent disinfection should always be secured.

ORIGINAL CONTRIBUTIONS

TOOTHsome TOPICS.

BY R. B. TUTTLE.

Pa is still working on avyation, an' he has flew 3 hundred feet without stoppin' er touchin' ennything.

But he has to hav a hill to start off with, an' he took me an' ma out to gran'ma's, where there is hills, to see the thing work. An' more'n that, he didn't care to hav everybody rubberin' like they do in a city, an' besides he wanted plenty of room.

I bet he's got a dandy when he's got her purfected.

I can't tell you much 'bout the machine, only it has a sled on the bottum, and pa sets on the sled, an' above him is the wings an' sails.

That's the way it waz but it ain't that way now. The hull top part is cabusted, 'cause it didn't land as pa figered.

Pa took 'vantage of the snow out at gran'ma's and went up on the hill with his sled and wings an' got on, raised the wings up and started. Ma an' I wuz down to the bottom as witnesses.

It didn't take long fer pa to git under way on his sled, an' by jinks, he wasn't half way down when he pulled a string that ajusted the sails an' he shot up into the air as purty as a burd; an' here we seen him comin' through the air like a swaller. But he wuz a goin' higher than he wanted to an' so he pulled another string an' she made a dive down, an' quicker'n I can tell it he landed his self an' machine in a big snowdrift head first, an' ma an' me run to the rescue.

There wuz plenty of cheesecloth and ropes an' fish poles in site in a jumble, but pa couldn't be seen. We called to him, but at first got no anser; an' ma sed, "Oh Joellie, I think pa's done it this time, an' gone an' killed his self!" an' began to cry.

But just then we seen the wreck begin to move, an' somebody was a swearin' as tho they never went to Sunday school. Ma's weep stopt

rite short, an' she expresst horror at sich language as wuz comin' out of that snow; an' she sed somebody must a ben hid in that snow that pa bump't into an' hurt.

But it wuz jest pa, to be honest about it, an' he sed he'd bet ma would swear, too, if she could git her breth, if she got souzed into a cold snow drift like that with cold snow a siftin' thru every crevice 'bout yer close. "Gosh!" he sed, "git me to ma's as quick as yer can. I'm a freezin' to deeth."

Ma sed, "Joel, you otter thank yer stars that you had a deep snowdrift to land in, an' pray in thankfulness insted of swearin'. I'm jest shockt at you, Joel; an' before your son, too!"

But I can tell you that son wuz a trailin' behind jest bustin' with laff. Gess I'd lafft if it hud broken pa's neck.

Well, then on top of this disaster pa came awfully near killin' ma the other nite, so we've had some excitement at our house. You see ma's been takin fisical culture lately, an' she duz a lot of marvelous stunts, an' she thinks she's a lots healthier. I don't know but I agree with her when she takes it into her hed to chastise her son.

Well, the way she came near losin' her life the other nite, wuz this: She couldn't sleep fur some reson, an' so she jest thought she'd do some stunts all by herself on the floor.

I gess she got more enthuzed than she thot, for enny way pa woke up, and heard a noise like some one struggling, an' by the dim lite all he could see over the foot board was a cuple of feet or sumpen', he couldn't tell what, a comin' up in site, and wavin' around. In fac pa sed, some times the 2 feet lookt like a hed and face, an' the first thing he thought of wuz his gun under his piller, an' he reacht fer it an' sprang to the foot of the bed yellin, "What the blank you doin' there? Hold up yer hands er I'll plug you full ov holes!"

But it wuz two feet what came up an' back an' from touchin' the floor over ma's hed as she lay on her back—one of ma's stunts—an' they was as scared feet as wuz pa, an' bein' blind, hit that gun an' knoct it accross the room, an' it went off an' wood a hit ma if she had still been there; but she wuzn't. She screamed an' made a dive fer the bed an' pa made a dive fer her, not quite shure who it wuz yet, and they clincht and both went in a tangled heap on the floor.

Gee, but I was scart, bein' waked that way, and begun to yell police an' things, an' then pa an' ma come to themselves, an' after

quietin' me, they spent some time tryin' to quiet themselves. Pa wuz awful mad an' sed things, an' ma got mad, too, an' sasst back, an' she tole pa that a man who had done as many fool stunts as he had, an' got into so many crazy scrapes, had no rite to call his wife a fool jest because she coodent sleep an' was takin' a little fisical exercise all by her quiet self.

Well, when my scare wuz gone, I jest hatto pull the close over my hed an' have a-nuther good laff, I was so tickled.

**THE FIVE LEADING, UNSOLVED PROBELMS IN DENTISTRY,
ARE AND HAVE BEEN THE AMALGAM FILLING, PHOS-
PHATE CEMENTS, CARIES AND EROSION, OBSTINATE
PYORRHEA AND ORAL PROPHYLAXIS.**

BY J. O. KELLER, D. D. S.

He who discovers most in these great problems does most in dental art and science.

Synoptic statements. Dental journalism shows no fundamental improvements or discoveries concerning these problems. It is not the purpose of this paper to criticise anybody's alloy or cement. Makers are doing about as well as can be done with the methods and materials used. Many of them deserve credit; but changed methods and materials, properly used, would give fundamental betterments.

Amalgam problem important. Without disparagement as to the merits of gold fillings, cast golds and porcelain inlay work, which all have their best uses, no other question before the dental profession has been, or is as difficult and important, as the amalgam problem. No other theme in dental science and art has engaged the attention of so many of its able men. Failure of crucible melt alloys (old method) to make amalgam fillings, free from ultimate, harmful structural changes, such as shrinkage, expansion, crevicing, marginal strength and color, are the fundamental causes for complaints; hence many of the ablest practitioners do but little or no amalgam work.

After more than ten years of practical tests with New System (old method) become thus defective within one to five years. These changes may be very harmful, yet not visible to the naked eye. They result from bad construction and not from bad dentistry, but the

dentist, by carelessness, may make "bad" worse. It is wrong to place the blame on the dentist.

After more than ten years of practical tests with new system Alloys and the famous "expands 1-20,000 of an inch" at an extra cost up into the millions, a discussion of the amalgam question before the Chicago Odontographic Society, February 19, 1908, resulted in the appointment of a committee to "rip up" the amalgam problem. Said committee reported back, requesting the society to present a resolution to the National Dental Association, asking that organization to name a committee to consider. No action has been taken by that body so far as the writer knows.

If the new system alloys had enabled amalgam fillings, as perfect as represented and advertised by many of its amalgam graduates, why did not said society extend a vote of thanks for Dr. Black's work instead of voting for the appointment of such a committee to "rip up?" Less microscopes and micrometers and more brains are necessary, to avoid another century of error in alloys and cements. It is structural changes which take place in the amalgam filling after several years, which is necessary to remedy, instead of fooling with setting bulk charges (most always harmless) which take place within 24 to 48 hours from time of inspection.

The amalgam problem is very important because there are so many amalgam fillings. In numbers they many times exceed all others. More than twenty millions of them are inserted annually by the forty thousand dentists in the United States. About 400 expert, 4,000 skillful and 35,000 average dentists constitute the 40,000. The average class does over four-fifths of all dental work. They do most of the amalgam filling. The expert and skillful class can command prices, hence do more gold filling and cast gold inlay work.

Amalgam filling work, free from harmful defects, will be a great boon to the 35,000 average dentists and their many patients. Fundamental betterments would mean much to dental art and science. Harmless bulk changes and conditions only can be gained. Stability of amalgam structure to within one 20,000th of an inch is not practicable. He who advertises it is a fraud. One-twenty-thousandth of an inch is a space so small that it can be seen only through the lens of the highest power microscopes.

Phosphate cements. The phosphate cement problem is very important, because of the extensive use of this product in setting crowns, bridges, inlays for fillings, bases and cappings; but there are so liable to dissolve in the salivary secretions. They frequently disintegrate in crown and bridge cups, which may become breeding places of deadly microbes. Putrefactive stench follows. It is important to remedy or reduce these conditions.

Calcined zinc oxides make cement powders. Different grades yield varying results. All cement liquids are composed of phosphoric acids and water, with soda, lime, zinc, aluminum or other metal oxides, by chemical reaction, to neutralize and regulate the setting. The patent or trust cement liquids all contain at least 50 and some as high as 68 per cent of soda phosphate.

Notwithstanding such soda phosphate cements are well made considering chemicals used, and may hold crowns and bridges from a few months to five or ten years or more, according to skillful or bad dentistry, the same cements would hold dental art work much longer and smell none or less, if made with suitable non-sodium phosphate liquids. The difficulty of transforming the metals, aluminum and zinc and amber into phosphates, so as to regulate and give proper setting has been an absorbing problem with cement makers and students in phosphate cements. It is but recently that successful efforts have been attained in this direction.

Physics and Chemistry. The Physics and Chemistry of amalgams and cements are very difficult. So far as the writer knows, not one of the Alloy or Cement makers, nor any of the 40,000 American dentists, has attempted a classification.

It is the Physics and Chemistry and consequent molecular constitution of these products which give good or bad results. Some alloys require their own weight and 25 per cent more of mercury, in the amalgam filling. Most cement powders absorb their own weight or more of cement liquids for crown, bridge and inlay work. No alloy should retain more than three-fourths of its own weight of mercury in the filling and no cement powder should have more than one-half of its own weight of liquid in the bridge cup. More mercury or liquid means, respectively, harmful bulk charge movements or more tendency to putrefactive stench and disintegration. The method of compounding the alloy and calcining the cement

powder, give different molecular structures and determine these requirements; hence the necessity of classification.

Specific Causes Very Difficult.. The Physics and Chemistry of amalgams and cements are very difficult problems with the makers of these products. Nearing the end of a century in amalgam work, about half a century in cements, no material or fundamental progress or discovery has been made in them by makers or dentists because specific causes of defects must be known to enable and suggest improvements. It is a maxim in science and medicine that cause suggests remedy or cure. Amalgam fillings still shrink, crevice and leak, and soda-phosphate cements are notorious for solubility. Makers have not even materially reduced bulk change and soluble conditions; hence no fundamental betterments.

No Scientific Authority. In consequence of no discovery of specific causes, not one alloy or cement maker or dentist is able to give the physical and chemical reasons, why one alloy or cement is better or not so good as another. Dentists are universally at sea as to which is best or worst and why; hence many able practitioners, because of good results with their good dentistry, are using the poorest product and think they are using the best.

Any alloy or cement maker, who is not able to give the formula, method of making, consequent physics, chemistry and logical results in the use of his products, is a scientific humbug. Such an understanding would cause an abandon of such specious advertising, as "expands one 20,000th of an inch," "enlarges water tight against the cavity walls," "hydraulic and should be subjected to moisture," and "stands the ink test" (see ink test foolishness, etc., etc.). The two latter have done incalculable harm to dentistry and bids fair to do more, as will be seen in time.

The physics, chemistry and logical results in alloys and cements are so important and difficult that any maker who has made an important discovery could patent and be proud to advertise and make known his achievements. Having no such discovery, the main secret with them is "that they have no secret worth keeping." Their methods are alchemous and cheap in the extreme. Printed briefs pasted on their foreheads would cause them to draw their hats. Sharp, specious advertising, is their chief stock in trade.

The Physics and Chemistry of alloys and cements, compounded

by true scientific methods, with methods of making, can be as well understood by the dentist as the maker. Secrecy as to same is always a "make believe" and means to demagogue the dentist, no matter by whom. "No secret is worth keeping" is their main secret. Unless the formula, Physics and Chemistry of alloys and cements can be clearly comprehended by the dentist, same as in pharmacy for the physician (who submits to no secrecy in medicine) the maker is practicing imposition. The dentist can understand true scientific methods, Physics, formula and Chemistry, as well as the compounder.

Lost Physics. Unless physical identities are maintained throughout the whole preparing process in compounding, lost physics result. Ultimate chemistry is uncertain. The Amalgam Filling may become very defective and the cement liable to wash out or smell like carrion in bridge cups. Nobody knows why.

Caries and Erosion. Decay and erosion in human teeth has engaged the attention of the ablest men, both in medicine and dentistry, for several centuries. About the year 1530 a German author ascribed decay to a decomposing acid. John Hunter, an Englishman (1778) called it mortification. Bell (1825) suggested the term "Dental Gangrene." Robertson (1835) and Regnard, of Paris (1839) charged it to food decomposition. Tomes, of London, discovered a chemico-vital theory. Magstodt, of Paris, had a chemical theory. Leiber, of Germany, made the first claim to the microbic theory of decay (1867). Later, Miller, an American dentist (in Berlin), claimed to have discovered the streptococcus germ, which he says forms and secretes lactic acid, which in time decomposes the lime salts of the tooth, resulting in decay. Dr. G. V. Black (Chicago) is the leading advocate of Miller's Micro-organic theory of decay.

Recently during 1909 (an extended paper has been placed in the hands of some of the able men of the profession, which ascribes the specific causes of decay in human teeth to result from the Neutral Salt agencies in the salivary secretions. This paper claims that there are three specific causes of Caries. The varieties and kinds are as follows:

First. Neutral Salt Decay.

Second. Neutral Salt-Acid Decay.

Third. Neutral Salt-Alkaline Decay.

At the request of several prominent men of the profession, this

paper will be printed during the year 1910, in several sections, in some of the leading dental journals. It is not theoretical. Logical results of physical and chemical experiments determine the specific causes. It will give the various actions by which the concentrated salivary Neutral Salt agencies break down tooth structure.

Obstinate Pyorrhoea. This dreaded malady has been little understood even by the ablest men in dental science. Its causes seem to have been wrapped in the utmost obscurity. It is so difficult to cure and its obstinacy so prolonged, that dentists generally prefer not to have calls by patients suffering with it. The paper which discusses the specific causes of decay in teeth will also give the causes of obstinate pyorrhoea. The decomposition of the cementum and alveolar process, in this malady result from the same causes that decay enamel and dentin in teeth.

Oral Prophylaxis. Oral Prophylaxis means to use systemic, local, and friction remedies to keep the mouth and teeth clean, so as to prevent or reduce caries, erosion and pyorrhoea. Therefore, in order to give scientific and true physical and chemical remedies to reduce or prevent these maladies, it is necessary that the specific causes of same should be known. As soon as these causes are ascertained, Oral Prophylaxis can then be properly formulated and not until there is such an undertaking. When Oral Prophylaxis may be considered prime in its importance to prevent disease, it is necessary to know specific causes of said disease, before oral prophylaxis can be scientifically formulated and directed. At the conclusion of the publication of papers, which discuss the specific causes of the disease in question, and which oral prophylaxis is intended to reduce or prevent, a paper will appear on Oral Prophylaxis.

A DENTIST'S PLAINT.

I'm weary of breathing the carbon'd air
And of looking out upon graveled roofs,
So I'm going where I'll be free from care,
And the noise and clatter of wheels and hoofs,
That roll in vast volumes upon the car,
As they fall in line like a great parade,
Of this I grow weary year after year—
The sound of a commerce'd cavalcade.

I'm going away to the Sunny South,
Where I can bask in some quiet dell,
Where I'll not have to look in a mouth,
Nor climb the stairs of the "Alley L,"
I'm going to take a trolley car,
On a line V-I-A Kankakee,
I'll take my time, smoke my cigar,
Dropping off here and there for dinner and tea.

I'm going away from frost and snows,
Where I'll remain until early spring;
Down where the trailing arbutus grows,
While the winds of the northern winter sing,
Some winter sports I may miss down there;
(The "Midway" ice and its evening "dates")
But then you know I'll be free from care,
And the risk of a fall on rusty skates.

J. D. ROBERTSON.

Editor AMERICAN DENTAL JOURNAL:

Dear Sir—I would like through your journal to take exception to one of the "Three Popular Dental Fallacies" by H. C. Sexton, D.D.S., which appeared in the November issue. Namely, "that cement is the best preservative of teeth." He says that he never heard of it until the inlay enthusiasts began looking for justification arguments. I have advocated long before inlays ever came into practical use that if ordinary cement could be retained in a cavity we couldn't ask for a better tooth preservative. 'Tis true that cement will gradually dis-

solve and wash out, but I want to ask the Doctor if he ever saw any recurrent decay so long as a vestige of cement remained in the cavity? He surely doesn't know that this is what brought about the advent of the inlay. I would like to know what argument he would bring about to convince a patient wherein a gold inlay was any better than a gold filling. I agree with him that the inlay is spoken of as a protected cement filling. And unless the margins are burnished over and polished down to the tooth so there is absolutely no line of cement showing such a thing should not be called an inlay. Assuming that we have the perfect fitting inlay we get the combined result, namely: the inlay retains and protects the cement; the cement preserves the tooth and that is all there is to it. Hence I hold that so long as cement can be retained in a cavity we have in it the best preservative known. And its retention is certainly assured by a perfectly shaped and filled inlay.

R. W. DELA, D. D. S.

CAST PLATES.

BY L. P. HASKELL.

In the December JOURNAL I find a long and labored article on the methods of casting plates. To me it is a mystery why time is spent in doing what I have found from a long and exclusive experience in artificial dentines is not only unnecessary but the object can be better and quicker obtained by swaging. I have had experience in both methods and achieve better results with the swaged plate, having tried both methods in the same cases.

As, for instance, in the flat jaws, I have had better results with a swaged plate than with the cast or with a rubber plate; in fact, the flat ridgeless jaws I have an especial liking for. There are on my shelves models of perfectly flat ridgeless jaws when the patients are wearing without air chambers; heavy continuous gum dentines and that, too, when unusually long bites were needed to restore the features. The only things needed are plaster impressions, relief over the hard center covering the whole; Babbitt metal dies. Plates swaged in this way will fit the plaster model and if that is correct the plate will fit the jaws. Don't bother with the casting process which seems to require so much detailed description and even then you are not sure of success.

ABSTRACTS AND SELECTIONS.

PLEA FOR MORE SCIENTIFIC AND ESTHETIC FORMS OF ARTIFICIAL TEETH.

First. Molars and bicuspid teeth which are carefully modeled after the shapes of natural teeth, especially in regard to the occluding surfaces. These occluding surfaces would not be modeled on the teeth of youth, but on the somewhat worn surfaces of middle life.

Second. Incisors carefully modeled after the natural teeth, beginning with the four basal temperamental types and introducing the more characteristic so-called "accidents of nature" as to contour and surface texture and markings.

Third. Better gradation and delicacy of coloring of the teeth.

Fourth. The arrangement of all artificial teeth into a system whereby the difficulties of making the proper selection would be greatly reduced.

Let me elaborate somewhat these four demands, commenting on various points as I proceed. So much has already been written in the way of criticism of the occluding surfaces of bicuspid teeth and molars as at present made, that it would hardly seem necessary to further emphasize this point. I have never seen any attempt to defend these faults of artificial teeth as now made. Why, then, are they continued? Because the profession has never, in its corporate capacity, demanded a reform. Nothing is really easier than to bring this about, and nothing but the most pronounced indifference will prevent its being brought about. Can any intelligent, progressive dentist be found who will take up the position that artificial bicuspid teeth and molars should not be of the same size and shape as the corresponding natural teeth? Nothing of the sort is in existence, and I believe that no manufacturer has any plan or method of working whereby a full set of teeth can be produced so that the upper teeth shall be in proper relationship to the lower. The convex tubercles to be found on the occluding surfaces of all artificial teeth as now made do not correspond to anything in nature. They are largely removed by every skillful dentist in mounting, and this necessitates much labor, which should be made unnecessary.

To illustrate how imperfect incisor teeth are as they are now made, I will relate an experience I have just had. I extracted two loose central incisors, the only teeth remaining in the jaw, and sent them to be matched in artificial teeth. The natural teeth are very beautiful in shape, texture, and color. The falseness of appearance in the best match that could be found in artificial teeth was very striking, and when one came to closely study the natural and artificial tooth side by side, it was easy enough to see and point out the faults in the artificial tooth. All angles and corners in the artificial tooth were rounded off, the effect being mere prettiness, with the loss of the finer beauty of character. The contrast in color between the tip of the tooth and the neck was much more marked in the artificial tooth. All with whom I have talked or corresponded are agreed that there has been a marked degeneration in the last twenty years in the coloring of teeth. In the artificial tooth to which I have just referred, there was a total absence of those delicate surface markings which add so much to naturalness of appearance. I have long noticed that when the manufacturer attempts to imitate any peculiar marking of the natural teeth he grossly exaggerates these markings, and makes them with a mechanical regularity that completely converts the effect into caricature. So far as one can see, no manufacturer has yet employed model-makers with exact knowledge and fine artistic taste. It is folly to pretend otherwise, because the results are before us, and I am inclined to think the majority of dentists do not realize the great possibilities for improvement in this direction. That appears to me to be the real explanation of the seeming indifference. If this work of reform is once started, I think all will be astonished that it should have been delayed so long.

I believe there is also a consensus of opinion that artificial teeth are not as strong now as those were which were made twenty or thirty years ago. There seems to have been a general all-round degeneration in the work, and several manufacturers frankly admit this. No doubt one reason for this has been the concentration of the profession on so-called operative dentistry, to the greater neglect of the prosthetic branch. Is it not true that the prevailing sentiment among the undergraduates in our dental colleges runs in the direction of doing as little prosthetic work as possible? Not long ago I at-

tempted to make use of the services of a young man who has a double qualification from two of the best American and European schools. He was asked to make an upper and lower partial plate for a mouth presenting no unusual difficulties. After spending a week over the case it ended in a complete failure, and had to be entirely reconstructed. I do not think this instance an exceptional one, and I am convinced that this work of reform in artificial teeth must be educative among dentists, as well as with the manufacturers.

I now come to my fourth demand, which is for the arrangement of artificial teeth into a system. I have mentioned this matter several times in recent communications to *Items of Interest*, and it seems hardly necessary to go over the ground completely at this time. Briefly, my claim is that from fifty to seventy-five molds or models of carefully-selected temperamental and racial forms of teeth, of the necessary sizes, arranged in a scientific system, would give us far better resources than all the molds at present in existence. It should be possible for any intelligent dentist to select the teeth for any given case from shade and model guides in five minutes, and order his teeth with a certainty of getting the best possible effect and result for that particular patient. Furthermore, if my suggestion is carried out, hundreds of dentists will find it possible to carry a sufficient stock of teeth for general purposes who now find it useless to attempt such a thing, and thus the manufacturer would get an immediate return for his outlay.

I have challenged any manufacturer, or any one else, to produce a set of artificial teeth which cannot be placed in one of eight or ten groups and show important differences. If my position is correct, what possible excuse can there be for the present lack of system and for the confusion caused by the great number of molds which more or less overlap each other. Fewer molds and better forms is our demand, briefly put.

My suggestion to the present meeting of the National Association is that a resolution be passed asking the manufacturers to give this matter their immediate and serious attention, and that a committee be appointed to go into the entire subject to correspond and confer with those who are able and willing to assist in bringing about the suggested improvements, and also to confer with the manufacturers to this end. Fraternally yours, J. Leon William,
Dental Cosmos.

CASTING, WITH SPECIAL REFERENCE TO CASTING ON PORCELAIN.

BY W. C. GILLESPIE.

The process of casting metal under pressure has opened the greatest field of possibility for saving and restoring teeth that the dental profession has come into in many years. The casting machine stands next to the dental engine in line of improvement in dental equipment and in variety of uses to which it may be put.

There are countless numbers of devices for casting metal under pressure, but all are variations of four basic types—those that utilize centrifugal force, suction, compressed air, or steam pressure.

The application of pressure casting—a very old process—to dental art will raise the general average of tooth-saving ability, practical merit, and artistic product of the profession because it will enable the less skillful practioners to form in plastic substance and reproduce in metal better dentures than they were able to direct in the more refractory substance.

Casting is neither an experiment nor a fad; neither can it be conducted on the nickel-in-the-slot basis. A few porcelain facings or teeth and a little scrap gold dumped into the machine before you go to dinner will not be a beautifully finished bridge when you return. Brains are as essential to successful casting as a properly constructed casting machine and necessary materials.

The limitation of the application of casting depends entirely upon the ingenuity and skill of the one who employs the process in constructing dental restorations. By this means, anything of which a mould may be obtained may be reproduced in metal with ease.

Castings consisting entirely of metal, such as inlays, or all-gold bridges, may be produced; or gold may be cast directly in contact with porcelain surfaces without a previous adaptation of backing. A simple inlay or a six-tooth bridge may be cast with the same ease and the same amount of labor in so far as the casting is concerned.

The amount of time required to cast an inlay may be as long or shorter than would be required to condense foil in the same cavity; but the physical labor is not a tenth part so strenuous, and the patient will rise up and call you blessed. More patients may be seen in a day,

because when the wax model is obtained the patient may be dismissed and the casting made when there is nothing else to do.

The advantage of cast gold over welded gold is too well understood to need comment, and where the inlay is preferable to a condensed filling depends entirely upon conditions to be met in each case.

The time required to construct a bridge by the process of casting is very much less, as a rule, than that by soldering, and the time and labor are just as much less as would be necessary to do the things avoided by the process of casting—namely, greater amount of grinding porcelain bodies, backing, making dies, swaging cusps, waxing cusps in position, coaxing solder to go where you wanted it and grinding off the excess solder you knew you did not need but were afraid not to put there.

The time required to wax up, invest, dry out, and heat up is the same for either process; but the actual casting requires much less time than building up the amount of solder would do.

Grant, for the sake of argument, that the *time* required by both processes is the same for a given case, the results obtained, labor and material saved and avoidance of fatigue and discomfort to the patient place casting far ahead of condensing fillings and soldering crowns and bridges.

The dentist who casts only inlays is certainly blind to the possibilities of a simply wonderful and wonderfully simple process which he is employing only in its most insignificant application, as valuable as the process of casting inlays may be. And the dentist who does not cast at all is either utterly non-progressive or too cautious for his own and his patient's best interests.

The process of casting, intelligently employed, is thoroughly applicable to the construction of shell crowns, all gold bridges, retaining appliances for regulations or pyorrheal teeth, porcelain-faced crowns, bridges wherein porcelain facings, ordinary rubber plate teeth, diatoric teeth, saddle-back teeth, removable-pin crowns, or Logan crowns are employed for abutments and dummies and for adapting Logan crowns to roots.

Any type of porcelain tooth may be cast upon without backing, but care should be exercised not to use a tooth with pins soldered

in position or a pin of composition metal that might have a fusing point below that of gold.

Backing as employed in the old process was to give a surface upon which solder would flow evenly and not ball up. It had little to do with the prevention of checking of porcelain, however contradictory that may sound to the teachings and accepted theories of the past. A direct contact of porcelain with heat or flame will not cause checking, provided the cold body is not thrust suddenly into a flame or furnace, but is permitted to heat gradually at first. It may then be carried to a degree considerably above the fusing point of pure gold; and if allowed to cool gradually, no checking will occur, though this be done repeatedly.

Borax never yet caused a piece of porcelain to check, except indirectly; yet this statement would be regarded as damning heresy by the old masters. These things I have proven by hundreds of tests and experiments during a practice of nine years and four years' experience with a porcelain furnace. While writing this paper I have had in my electric furnace an ordinary plate molar tooth, a Logan crown, and two diatoric molar teeth, which were rolled in damp powdered borax and placed in the furnace covered with a layer of borax, and the hole in the diatoric teeth filled with it. A nugget of pure gold was placed with them and fused, and the teeth came out without a check, but were most beautifully glazed on surfaces that had been ground with a stone. The borax may unite with the porcelain and cause it to become more brittle if carried very high, but the experiment is cited in proof that it does not directly cause checking.

Checking of porcelain is more often caused by unequal expansion and contraction than anything else. This is due to lack of uniformity of distribution of heat or the sudden heating or cooling of the surface or part of the porcelain body. Different degrees of heat produce different degrees of expansion and the surface or some portion of the body of porcelain heating or cooling faster than the interior or some other portion of the mass; and porcelain, being a low conductor of heat, an unequal stress is set up that is relieved only by fracture.

Fracture is also caused by permitting molten solder in soldering or molten gold in casting to flow around an edge, and in the con-

traction of cooling a grip is set up that will break any porcelain made. Such fracture is due to improper waxing up of the case for either soldering or casting.

It is also claimed that a metal pin in a porcelain body—such as the post of a Logan crown—will expand faster than the porcelain, and thus cause fracture. That claim sounds plausible, but is little more than sound, for a degree of heat that would expand the metal sufficiently to do that would have already fractured the porcelain by suddenly expanding the surface. Also where there is a post baked into a tooth heat will be conducted into the center of the mass by the metal as well as being absorbed by the surface and the distribution will be more uniform than if the post were not present. If the heat were applied to the post directly and conducted to the interior of the porcelain while the surface received a much lower heat, then the expansion of the post and the layer of porcelain surrounding it would be faster than that of the surface, and fracture would result. But to do that would require considerable trouble to bring about something nobody wants.

The fractures indirectly caused by borax are brought about by a union of borax with the porcelain, causing it to lose its elasticity and become more brittle, as is the case when gold is alloyed with some base metals. This loss of elasticity renders it less capable of resisting the stress of expansion and contraction, and a lighter inequality of temperature will cause a fracture, than if the integrity of the porcelain had not been impaired.

An inlay or all-gold casting of any nature may be successfully cast in a comparatively cool or a cold mould, as is proven by castings of iron and brass foundries. But to cast upon porcelain without fracture the mould must of necessity be brought to such a temperature that the porcelain bodies contained will be subjected to no undue strain of unequal expansion by sudden contact with molten gold of much higher temperature.

The investment ring is really raised to a red heat; but investment material is a low conductor of heat, and several minutes will elapse before the heat is distributed throughout the mass. So, unless sufficient time is given, the porcelain in the mould will be several hundred degrees cooler than the surface, and the molten gold forced into the mould will fracture the porcelain, just as cold

glass fractures by sudden contact with hot water. Get the porcelain in the mould thoroughly hot and you may cast all the gold on it necessary for any denture ever put in the mouth, and the tiniest facing will never be checked if properly waxed and invested. No flux is needed for any cast, and borax when fused is very sticky and, uniting with the investment, interferes with the entrance of gold into the sprue-hole.

Logan crown joints may be fitted as accurately as the margins of inlays, and thus they become the most perfect crown restorations known to the profession, and may be perfectly adapted to roots gone far below the gum line all around or at any point. Molar stumps in the same condition may be easily and beautifully restored the same way by placing a pin in each canal and using plate teeth with pins baked in or diatoric teeth. No fear need be had in casting into diatoric teeth, for the molten gold enters the recess in them at its maximum expansion, and the contraction upon cooling makes the post thus formed slightly smaller.

Removable pin crowns, such as Justi's, the Davis, etc., have no lateral openings, as have the diatoric teeth; consequently the molten gold will not enter and completely fill the recess provided for the pin because there is no avenue of escape for the air caught in the recess. It, therefore, is better to remove the crown from the wax before investing, and the porcelain need not be subjected to heat at all, but may be cemented on the post after the gold that perfects the adaptation to the root has been cast onto the post.

To use such crowns for dummies, clip the post off to the desired length, insert in crowns, wax crowns in position, chill with ice water, slip crowns off posts, cast, and cement crowns in place, and you have a most beautiful and practical case. Crowns and dummies thus constructed are far less apt to break away than those backed and soldered, for they are supported by perfect contact of gold at every point, while a backing touches only here and there, and their retention depends almost entirely upon the strength of the pins baked into the porcelain. And if one should break, grind up and cement another on the post left standing.

Pure gold should be used for inlays and 22-karat gold for everything else. In casting inlays and shell crowns do not waste gold by casting them unnecessarily thick. Hollow inlays are easily made, a

much stronger retention is secured, and a greater thickness of cement protects the pulp from thermal irritation. There is on the market a device consisting of a hollow metal bulb, with small extending point, through which a hole extends back to a tube to which is attached a rubber tube with a mouthpiece. This end is taken in the mouth, the metal bulb is heated, and when the hot point is touched to the surface of the wax model to be hollowed out, the melted wax is instantly sucked back into the bulb, leaving edges as clear-cut as if cut with a knife. The same thing may be done with an ordinary hot-air syringe or chip blower having a bulbous nozzle. Solder to the nozzle the shank of a hypodermic needle, having bored out the needle with a small drill. Connect the rubber bulb to the metal tube with six or eight inches of rubber tubing, so the bulb may be worked with one hand and the metal point directed steadily with the other. Mount the wax model of the inlay on the spruepin fixed in a base to hold it steady, and then with the point heated suck out any kind of undercut or hollow you desire.

This is but a small part of the merits and possibilities of the process of casting as applied in dentistry; but too much time cannot be taken up with one writing.—*Dental Headlight*.

THE POSSIBLE MORAL EFFECT OF THE GOLD INLAY ON THE DENTAL PROFESSION.

BY H. W. WILLS. (BRISBANE).

(Read before the Odontological Society of Queensland.)

Since the advent of the cast gold inlay, I have been forced to come to the following conclusions with regard thereto:—In the first place it is a temptation to make our work so much easier in the matter of gold fillings, that one is apt to resort to the inlay on almost every possible occasion, to the imminent danger of cutting away a great deal more of the solid, healthy tooth structure, than is absolutely necessary to make a good job. To get a properly shaped cavity for an inlay, it is necessary to cut away sufficient tooth substance to enable us to withdraw a good wax impression without distorting it. In upper incisors, for instance, one must cut the bulk of the substance away from the back of the tooth in such a manner, that the

impact of the lower incisors against the lingual surfaces of the uppers, shall be a factor, tending always to keep the inlay held in place by striking it in the direction of its insertion, or rather, that such impact shall not tend to dislodge it in the process of mastication. In the next place, there is the great danger of accidentally exposing the pulp in cutting out the retaining grooves for locking the inlay in place, thereby running the risk of having the gold too near the pulp. In approximal cavities in molars and bicuspids, much more must necessarily be cut away in order to withdraw the impression. In a great many instances, a gold filling can be inserted without taking away more than half as much healthy structure as is necessary to make a gold inlay in the same position.

No doubt the saving of time to the busy patient, and the busy dentist, is a great temptation to us to make inlays instead of foil fillings, to say nothing of the nervous strain that is put upon both patient and operator in making large contours, and filling cavities difficult of access for the proper introduction of gold by the malletting process. The fact must not be lost sight of that, in making inlays, we are apt to suffer in the matter of manipulative ability to insert good gold fillings. Again, in many instances it is not advisable to finish an inlay at the same sitting; as the cement would not be sufficiently set for the purpose, in which case we have to keep the space made for the preparation of the cavity, and the insertion of the filling open for a few hours, or a day or two, until we can have the patient come in again for the final polishing and finishing of the inlay.

The gold inlay has its limitations, however. It is justifiable where an incisor is so much decayed on the lingual surface, and it would be difficult to insert, and properly condense foil. Up to certain size and volume, the making of an inlay is no advantage over a gold filling as a timesaver, because the various stages of the process actually take up as much time as the insertion and finishing of a foil filling, but minus the discomfort and nerve strain to the patient, which is an item in certain cases to be taken into consideration by the dentist.—*Commonwealth Dental Review.*

PORCELAIN MOLARS AND BICUSPIDS.

BY A. RETTES, UTICA, N. Y.

(Read before the Fifth District Dental Society, at Utica, Oct., 1909.)

Presenting this subject to you, my idea is simply to explain a method of construction for molars or bicuspid—a solid porcelain crown—claiming no great achievement worthy of a monument, but merely a crown that can be constructed easily by the average practitioner, with good results, and without more waste of time at the chair than is absolutely necessary to get the desired result. More intricate, and for all I know, better, methods may be employed in order to obtain the highest artistic results, but the average practitioner cannot always command the time and the price for works of art. The great mass of the people must be attended to, and a large share of our methods must be adapted to their needs and circumstances. They must be adapted to produce good results and accomplish the object of restoring the masticating organ to health and use, imitating nature so as not to be an ugly disfigurement, such as are many of the shiny gold crowns.

When a molar or a bicuspid is broken down so as to have a dead pulp, or so that the destruction of the pulp is necessary, there remains generally but a mere shell. Now, why fill this shell? It will be but a short time until the walls will break away under the stress of mastication. A weak barrel is not made stronger by filling it with lead, nor is a shell tooth made stronger by filling it with amalgam or an inlay. The walls will break away. A gold shell fitted over it will, of course, make a strong, and also unsightly piece of work of it; but aside from its unsightliness, it will also, in a majority of cases, make a foul piece of it. In such case, a corruptible mass is simply buried out of sight. Of all the gold crowns I have had occasion to examine during the last fifteen years, I dare say that two-thirds of them were unclean with decay and foulness underneath the crown. Well-constructed gold crowns have their place, and will probably always be used; but their place should be limited to out-of-sight situations, and where their construction can be accomplished so as to eliminate their worst features.

In my practice I prefer a solid porcelain crown in almost any

situation, wherever it can be properly constructed, even though it may be out of sight, on account of its cleanliness, as well as natural appearance.

Given a broken-down molar, such as previously mentioned, the shell is trimmed down even with the gums, the pulp chamber is squared or rounded out as deep as possible, with the walls parallel, or I may say the bottom of the pulp chamber of same width or incline as the top of it. The largest of the roots, the posterior in lower molars, or the lingual in uppers, is drilled out to receive a round platinum-iridium post. This drilling is done by hand, and the roots drilled large and deep enough to receive a post of, say gauge 12, 13 or 14, as the case may be. A round post, with a screw thread cut on to it, is preferred to a square or flat post, as it gives a better chance for drilling the root deep and of a size to just about fit the post, or vice-versa, thus getting a strong anchorage with the smallest amount of cement necessary. This principle is especially necessary on bicuspid roots. The root, being of easy access, is readily drilled, using proper drills.

A screw thread is cut on the post, which is to be long enough to come above the pulp chamber. Of course, the other roots in molars are to be treated and filled in the usual way of the operator. I give here the technical procedure simply of making the crown. Only one root is drilled for a post, except in those bicuspid which have two canals; there I frequently use two thinner posts. Sometimes the roots in a molar are crooked, which admits of but a short post. In such case, a short post is used, without the least fear of failure, as the pulp chamber provides a seat the same as a large inlay, and together with even a short post will give plenty of holding strength for the crown.

Now, take an impression of pulp chamber and face of the stump with any of the quick-hardening preparations of which many are in the dental market. Of course, the stick form is handiest. When impression is cool, take a thin piece of soft platinum, about No. 38, large enough to mould over this impression. This platinum is always annealed in the electric furnace by subjecting a roll of it to a high heat therein, letting it cool gradually. It is not necessary to be so very particular about burnishing this platinum perfectly on to this impression, holding the latter in the hand and burnishing it on

approximately well. Little slits may be cut into this piece of platinum, so as to burnish it on easier, which slits can then be soldered with pure gold, without the use of flux; then the piece is again placed on the tooth root and more perfectly burnished into the pulp chamber and on to the face of the stump, and trim even and perfectly with its edges or margins. The entrance to root is pierced with a pointed instrument and the post passed through it into the root. It is rather difficult to remove from a molar the platinum face and the post together in their right position in the ordinary way with a wax or resin cement, but the difficulty is easily overcome by a little fast-setting oxyphosphate cement, just enough to fill the pulp chamber and unite with the post therein; when set hard, a pair of pliers applied to the projecting part of the screw will remove it in perfect shape. It is also rather difficult to solder the post to the platinum face down in the pulp chamber, and it can be done much easier by investing the piece as above removed upside down in plaster or sand or in plaster and finely pulverized coal ashes, bringing the investment over the edges of the platinum face, and leaving but just enough exposed to flow a very little pure gold around the post and platinum face, where they join on reverse side. No flux is necessary. Boiling the piece for a few moments in dilute sulphuric acid will remove the cement. The piece thus soldered to post is now replaced on the stump or root, and is now carefully burnished and trimmed to perfection, even with the edges. You will notice that no effort has been made previous to this to obtain perfect results in the fit of the face piece by swageing or other elaborate process, which are unnecessary. No possible impression is as good as the root-face itself, and the final and exact trimming and burnishing is much more quickly and perfectly done on the real object. You probably also noticed that no part of the face is brought over the outer edges of the stump in the shape of band, or otherwise. Years of experience have taught me the fallacy of impinging on the gum tissue, and my efforts are to get a smooth, even line with the margin of the stump. Of the many porcelain crowns that I have thus made, I have had but very few where decay occurred near the point, and where it did occur it was easily recognized and repaired. A band on such stumps is unnecessary when you have a good, well-fitting post and a good seat by means of the pulp chamber. The trimming and burnishing being done, the projecting

end of the post is trimmed to the size wanted to be imbedded in the porcelain, and it need not be so very long at that. Then the piece is replaced on the stump, and porcelain face piece selected of the proper shade and size, and ground to fit the edge of the stump. Its pins are drilled out, and the glaze on the inside ground off, and it is then cemented into its proper position to platinum face of post with the ordinary wax and resin cement. A careful note is made of the articulation, and the whole removed and invested in a small platinum tray, in plaster and pulverized silex, the porcelain face downward. The patient is dismissed, and the balance of the work is done in the laboratory, the object being to save as much time at the operating chair as possible. The pins of the porcelain face are removed, and not left or used to fasten around the post. This is done to obtain a solid porcelain crown when the baking is finished. The weakness in most porcelain crowns made by the operator is in dividing the porcelain too much by the pins clasping the post; thus the porcelain is apt to break away in pieces under the strain of mastication. A short end of the platinum and iridium post embedded in the porcelain is quite enough to hold the crown. So strong have I found a solid, well-baked crown, that I have never yet had a broken molar crown come back to me; and of the many bicuspid crowns I have made, I have had but a very few come back broken, and those were built on the old divided plan. So convinced am I of the strength of undivided porcelain crowns that during the last two years I did not care whether there was a long or short bite; I used them in either case.

When the piece, as above-mentioned, is invested, the cement is removed by either hot water, or by setting it in front of the furnace, melted off, and finally burned off. I prefer hot water. When clean of cement, a little porcelain body or enamel is packed carefully at the place where the porcelain face joins the platinum, and back of the screw post, avoiding its coming in contact with the post, the object being to merely bake or fasten the piece to the platinum. If it is packed against the screw at this stage, the body will draw away from the porcelain face and go on to the screw, and here again is another reason for cutting out the pins of porcelain face piece. Of course, at this stage it is merely biscuit, and quite often the first bake fastens the porcelain face; but sometimes two bakes are necessary. I will say here that not being troubled with an assistant, I have my

electric furnace back of my chair, and I do these little details between times, or while I am operating on a patient.

When the porcelain face is thus fastened, all investment is removed, and the porcelain body is now packed further up on the porcelain face and against the back of screw post, and then is, by its post, simply stuck on one of the many little clay models every porcelain worker is in possession of, and again heated and biscuited, and when again cooled the body is packed solidly and the whole shaped as wanted, replaced on clay piece and finished by one more bake. I use Jenkin's prosthetic body, which I have found strong and useful for just such a crown. Other bodies and higher-fusing ones can be used, and probably by some with even better success. I have used them with good satisfaction, but somehow or other fell back to the Jenkins' Prosthetic. When higher-fusing enamels or bodies are used, it is necessary to place just a little plaster and silex on the underside of platinum face and around the post, or else the fusing of the pure gold might disarrange their position, and thus ruin the fit. There is no danger of the porcelain face moving its position; at least I never had one do it yet.

When finished, the patient is sent for, and the crown set in the usual way, first undercutting the pulp chamber.

You will now justly say, "How about the articulation?" I have already stated that when the porcelain face is temporarily cemented to the platinum face a note is taken of the general run of the articulation, and experience will soon teach how to build up the crown, taking care rather to have it a little full; then before setting the crown, it can easily be ground on the articulating face and sides to properly fit its surroundings. My experience is that I can save time and get as good results by this method as by wasting time over taking bites. The ground surface is quickly smoothed by coarse and fine sandpaper, a,s,f, and I prefer that kind of a masticating surface to a furnace gloss.

Bicuspidis are made in about the same way, with such slight modifications as will suggest themselves to any operator.

In conclusion, I wish to say that my patients, without exception, so far as I know, have in every instance expressed their satisfaction at being exempted from wearing a shiny gold crown. They prefer the natural appearance and the cleanliness of the porcelain crown.

I do not wish to decry gold crowns in their proper place, but their use has been, and is still, abused.—*Dental Practice*.

ARSENICAL POISONING, ACCIDENTAL, IN PULP TREATMENT.

When sealing arsenic trioxid within a tooth it is best to inform the patient what has been done to enforce the importance of keeping the next appointment and of proper care so that the dressing be not disturbed. They should be instructed to return at once in case the tooth or gum becomes sore. In case of accidental leakage, all that is necessary is to first wash the part with an antiseptic solution and then mechanically pick off the dead or sloughed tissue with sterile pliers until bleeding is produced, if this is possible, after which the parts should be disinfected and the tissue stimulated. As a disinfectant use three per cent solution of hydrogen dioxid, and for stimulation iodine compounds are useful, or a paste made of eugenol and oil of cloves. In severe cases, where the arsenic trioxid has penetrated to and devitalized the process as well as the gum, the first treatment is surgical, the affected process should be removed with a suitable burr in the engine; if this is followed by severe pain, orthoform may be added to the paste of eugenol and oil of cloves which is now applied. These cases should be closely watched and treatment kept up until the part has healed. Dialyzed iron is useless in these cases; it should not be used—J. P. Buckley, *Brief*.

Dr. Black says in part, in answer to the fifth question: "There is often danger of septicemia resulting from alveolar infection. I think that the extraction of the teeth in these conditions is the best way to avert the danger, though it may not always be successful. There are quite a number of deaths occurring from infections in connection with alveolar abscesses that are not reported as such. Several have occurred in Chicago. In my own practice death has been very narrowly averted in a considerable number of cases. The danger to life in alveolar abscesses is not at all sufficiently recognized."—*Julio Endelman, Cosmos*.

A TALK ON TARTAR SOLVENT.

BY JOSEPH HEAD, D.D.S., PHILADELPHIA, PA.

Your president has asked me to make a further explanation of the action of the biffuoride of ammonia solution that I had the pleasure of presenting to the profession some time ago, and also to describe some of the physiological symptoms occassioned by its application and their results.

The need of a tartar solvent or something that would dissolve tartar and not dissolve the tooth has been felt ever since dentistry began. Much as it was needed, however, there was always a feeling of hopelessness because the ingredients of tartar and tooth structure are practically the same, both being largely composed of carbonate and phosphate of calcium. Therefore, the solvent that would dissolve one would theoretically dissolve the other. And so while we have been looking forward to this for years, we felt that it would be impossible that such a thing should be.

Some years ago, during a series of experiments, I found that commercial hydrofluoric acid would not cut either the cementum or natural enamel—that is, macroscopically. What the microscopic effect may be is still open for future investigation. I tried the effect of a little hydrofluoric acid on my own gums, and while it dissolved the tartar it dissolved everything else within half an inch. I then started out to find some modification of it that would give us the good effects and prevent the evil effects. It is not necessary to go into the long series of experiments that I entered into, but I finally found that a solution of biffuoride of ammonia would still dissolve the tartar and would, with proper use, be harmless to the soft tissues.

You could hold a porcelain filling in the fingers and wash it with the solution of biffuoride of ammonia and etch your porcelain filling with safety, and with as much ease as though it were hydrofluoric acid. Any individual who has had experience with hydrofluoric acid knows it is one of the most dangerous acids. It is difficult to apply an antidote because the burned surface is made so hard that the antidote cannot get at the acid. Quick disintegration follows with pus and an unsightly burn is the result. A burn on the

finger with sulphuric acid that would heal in two or three days, with hydrofluoric acid might not heal during three months, and perhaps the end of the finger might be lost.

I made several batches of bifluoride of ammonia, and, being encouraged with my success, I tried making up lots of six and eight ounces. In such lots fumes came up so rapidly that I burned my lungs and had a bad case of bronchitis for two or three days. I only speak of that to let you understand just what I had to undergo, and what you may have to undergo if you wish to make it. Anybody is welcome to make it or have it made and sell it.

In the light of the recent Taggart suit in which Dr. Taggart has given a good thing to the profession, and at the same time wishes to have the profession pay him a royalty on his process, I consider that he is taking away the obligation of the profession to be grateful to him. We all owe Dr. Taggart many thanks for the good he has done, but if Dr. Taggart and his friends demand that the profession lie down and grant him a process patent, I lose my gratitude for what he has done, and I am proud to say I will oppose this patent as long as I am able.

Concerning the suits of McKesson & Robbins, I will also say Dr. Squires is being threatened with a suit for the use of an ingredient in a tooth powder. The time has come when so-called ethical men should be shown in their true colors, when they make discoveries and patent them so as to exclude the rest of the profession from the possibility of discovering those same facts. I consider they are placing themselves in a very unethical position, and I for one will not be a party in the slightest degree toward upholding them. I speak of this because I wish it to be understood that I had the bifluoride solution made for the profession because the profession itself seemed unwilling to make it. I went to the various chemists throughout this country and asked them if they would make the bifluoride solution for me and for the profession so they all could get it, and they said: "Is there any danger connected with the manufacture of it?" And I had to admit that there was; whereupon they all declared they would have nothing to do with it. Finally I met Mr. Adamson of Baker & Adamson. He is one of the greatest experts on hydrofluoric acid in the country, and he is now able to give you my solution of this acid, within 1-100 of one per cent. And he has prom-

ised that it shall always be of the correct standard and the profession can get it from the S. S. White Dental Manufacturing Company whenever they wish.

The action of this bifluoride of ammonia is most interesting, as while it will dissolve the tartar, it seems most rapidly to dissolve the bond between the tartar and the cementum, so that a tartar-covered tooth dropped into this solution will be so affected that the lumps of tartar can be quickly scaled off. This is valuable because it makes it unnecessary that the large lumps of tartar underneath the gums should be entirely dissolved. They need only be loosened and are then readily removed by the scalers.

I should say, on general principles, in the treatment of pyorrhea that when the patient comes you should first cleanse his mouth of all tartar that can be readily reached by the scalers. The pockets should be rinsed well with water, and then the application of this solution should be made by means of the abscess syringe made by S. S. White No. 33,* and inserting its nozzle to the bottom of the pocket, the pocket should be filled up and all excess wiped off the gums and adjacent tissue. The rest of the mouth protected by cotton rolls or napkins, the application should be made for from one to two minutes, and then the patient should rinse his mouth and what is left of the solution in the pockets should be allowed to remain in order to give the tissues the therapeutic effect of the solvent.

The home treatment of patients should consist of thoroughly flossing the surface between the teeth twice a day to remove bacterial colonies. Then he should brush the teeth and the gums thoroughly. The gums will stand the tooth brush as well as the finger nails will stand the nail brush. And after brushing, the patient should hold a good mouth wash in the mouth for from two to three minutes to sterilize the portions of bacteria film that may be left between the approximal spaces of the teeth.

The solvent will not only heal up the pockets where a lump of tartar has been removed, but also cause the healing of pockets where there seems to be no tartar at all and the roots are perfectly smooth. It has the power of dissolving any uric acid salt crystals which may be deposited in the peridental membrane which would prevent the mem-

*The new abscess syringe with the celluloid barrel is also valuable.

brane from reattaching itself to the root. The chemical advantages of this solvent seem to be multiplied by the therapeutic advantages. Those who know how to cure pyorrhea, with this remedy will multiply their cures four or five times. The only cases where I have failed to obtain reattachment of the gum to the tooth have been those cases where there has been necrosis within the body of the root.

Question.—How many teeth would you treat at one sitting?

Answer.—Where there is excessive irritation occasioned I would treat only a few teeth of the upper or lower jaw, but ordinarily I would treat every pyorrhea pocket in the mouth. However, some mouths are exceedingly sensitive and will not stand the application as readily as others. But I have found that these stand it more readily with less irritation as the applications progress.

Question.—Would you use the alkali mouth wash after these treatments?

Answer.—No; I would not syringe out the pockets with water or alkali. Simply rinse the mouth with water. This material when allowed to stay in the pockets stimulates them to healthy action. It seems to have the power of discriminating between the living and dead tissue, and stimulates the one and destroys the other.

Dr. Beggs.—How often would you use it?

I make the applications not oftener than twice a week. After you have made it the next day the gum will be sore and the next day a little more sore, and the next day better, and the fourth day you can make the application again. Sometimes I even take the fourth day for removing the tartar and wait a little before making another application, because, as I have said, this solvent seems to have the power of attacking the bond between the tartar and the cementum. Where the tartar is very adhesive I make one or two applications before I can do much scaling. And I have discovered that under those circumstances after the fourth application you will find that the adherent tartar will come off in large black scales, and the root will feel as smooth as though the instrument were slipping over velvet, a sort of smooth, slippery feeling, and you can accept almost as a clinical symptom that all tartar is gone. Weekly applications of the solvent should be made and the pockets will heal rapidly.

Question.—What is the effect of the solvent on the instruments?

Answer.—Very little. If they are wiped off as often as they ought to be in the office you will never have any trouble.

Question.—About how many treatments are required?

Answer.—I should say four or five, although you cannot tell. Gums differ. I have had cases where teeth were so loose you could wobble them, and in a month you could attach a bridge to them. Some teeth require continuous attention.

Question.—How many applications at one sitting?

Answer.—According to the amount of irritation caused. A friend of mine said there was a case where a red blister came upon his gum, and I made an application of one minute without any pain. The gum had become somewhat accustomed to the medicine. Generally, when a patient comes to me, I take the mouth in sections of one-half or one-half upper and one-half lower, on each side, and examine all the pockets and fill all the pockets with solvent once a week.

Those who have not had good results have not had them because they were afraid to use it in sufficient quantities. It is beyond the experimental stage; one or two hundred friends of mine are using this and have succeeded in getting good results.—*The Dental Digest*.

ETHEL CHLORIDE USED IN CHILLING WAX INLAYS.

Some one has suggested the use of ethel chloride on cotton for chilling wax inlays. I have found it very satisfactory also in rubbing a smooth surface on the outside of wax inlays. When the wax inlay is removed from the mouth it should be washed in soda water to remove the mucus which sometimes produces a surface on the gold inlay that you cannot account for otherwise.—A. L. LeGro, *Register*.

AMERICAN CIRCULATING DENTAL CLINIC.

District Centers—Cleveland, Philadelphia, Los Angeles, Chicago, New York, New Orleans and Kansas City.

The Cleveland Dental Society has appointed a committee to be known as the American Circulating Dental Clinic, consisting of Doctors G. H. Wilson, W. A. Price, H. L. Ambler, Guy D. Lovett, V. E. Barnes and S. M. Weaver.

The object of said committee was to arrange an interchange of

clinics with a given number of cities, probably seven, representing seven sections of the United States.

The cities chosen are Cleveland, New York, Philadelphia, Chicago, Kansas City, Los Angeles and New Orleans.

The idea is to have each society appoint a similar committee of six to co-operate with the other cities. Each committee's duty would be to collect (say ten) of the best possible clinics from their districts. Clinics to be composed of New Devices, New Methods, Superior Pieces of Workmanship, or anything the committee should elect as an educational clinic of sufficient importance.

We want the new things brought out and believe this will be the best way to bring the different sections of the United States in close touch with one another.

We realize there are many valuable ideas and appliances lying around dormant and kept from the profession because the originator is not a writer for magazines, or he is too busy to take the time to exploit them.

An active committee will be able to obtain a great many such and induce the men to put them in a presentable shape for the American Circulating Dental Clinic.

We are desirous of having the committees appointed at once, so they will have time to provide their display. The idea at present is to have the clinics all shipped to Cleveland first and arranged in a systematic and presentable shape for exhibition. Also arrange the combined clinics in shipping trunks so that they may be forwarded to the next city. Each clinic is to have a short typewritten explanation to accompany it, so any member of the committee to whom it is shipped could examine it and be able to explain in a few words at time of exhibition.

After the clinics have made the round of the circuit, Cleveland, for instance, would take out her old clinic and put in a new one, and so on around the circuit. This would give each city practically one year to collect the new exhibit.

There being seven cities in the circuit would take in the winter months, say from October to April, the probable months in which societies hold their meetings. These dates will have to be arranged later to best accommodate all.

We do not want this Exchange for convention use, but as a

grand show for the city and surrounding territory which it represents. The committees have been chosen from men who are enthusiastic and who frequent conventions in order to meet with progressive men. The committees are appointed in the following manner: Two for three, two and one years respectively. In this way the oldest members, being familiar with the work, would be of great assistance in keeping up the high standard of clinics which we hope to obtain.

There are more details to be worked out later and the Cleveland committee will welcome any suggestions from the other committees.

The aforesaid cities have been chosen as best representing their section of the United States and we hope to receive immediate and encouraging co-operation. If we all work together we can make these meetings the largest exhibitions of progressive dentistry ever seen.

All clinics should be sent to your district chairman, and he in turn will send his combined clinic to Cleveland for the first meeting so they may be arranged for the trip around the circuit.

We hope every city chosen will put its shoulder to the wheel and try to make its exhibit the best.

Yours truly,
S. MARSHALL WEAVER,

Central Chairman.

N. B.—Send clinics to your district chairman keeping models small and light as practical. Accompany each with a detailed description as concise as possible.

At a meeting of the Chicago committee on the American Circulating Dental Clinic it was decided, in order to create interest and reach the greatest number of dentists who otherwise might not be asked to clinic, to make the clinic competitive. This will give every man who has a new idea a chance to compete. A letter explaining the clinic in detail should be sent to the district chairman, Dr. D. C. Bacon, 103 State street, Chicago, and the clinic under separate cover with concrete explanation accompanying it. Each clinic will be given a number as it arrives and the committee will select the ten best, after which the names will be attached so that the clinician may receive full credit for his work.

MISCELLANEOUS

METHOD OF SETTING INLAYS.

My method of setting inlays has been to wash out the cavity thoroughly with a stream of warm water, then to pack cotton rolls on both sides of the tooth to be filled, if in the lower and on the buccal or labial side of the tooth; if in the upper, insert the saliva tube under the tongue, which must be kept from touching the tooth during the operation.

I then wipe out the tooth with dry cotton, followed by cotton saturated with warmed alcohol, then dry cotton again, and dry with blasts of warmed air. The inlay I dip in alcohol and pass through the flame to burn away all moisture. The cement is then mixed and inserted in the cavity, and the inlay jarred into place. After I am sure the inlay cannot be forced down deeper, I wipe away the surplus cement, and coat with sandarac varnish to prevent the moisture reaching the cement till it has had sufficient time to set.—E. S. Barber, *Review*.

COCAIN AND THE RUBBER DAM.

We sometimes hear dentists objecting to the use of the rubber dam, because the patients so much dislike it. Allow me to say that if you will take some finely powdered cocain, pour a small pile on a fresh piece of paper, moisten a spatula and carry a little on the gums, outside and in, of all and more teeth than are to be enclosed in the dam, and caution your patient to avoid swallowing for two or three minutes and then expectorate, much of the dislike will be overcome.

I have been surprised to see what can be done in excavating sensitive teeth, to say nothing of overcoming the dread of applying the rubber dam. I have used this method for fifteen years without the first symptom of bad results. The injection of cocain should be condemned, as too many complications follow.—Levi C. Taylor, in *Dental Brief*.

SULPHURIC ACID IN PULP TREATMENT; CAUTIONARY. .

After using sulphuric acid in pulp canal treatment for a few years I became impressed that while its action was helpful in opening a pulp canal, its after-effect on the tooth was disastrous. So many cases that my records showed had been treated by the acid returned after the lapse of a little time with rapidly-progressing, recurring decay, that I have abandoned it. I now use the potassium sodium alloy, and find that with a smooth broach I can enter into, open, and clean a pulp canal by its use quite as readily as with the acid, and I feel sure that no untoward after-effects will follow its use. In using the acid I was careful, and was careful to neutralize it with soda bicarbonate after its work was done. Evidently this was not effective, and its disintegrating action continued after the tooth was filled.—Chas. P. Shupack. *The D. D. S.*

GOLD DUMMIES FOR BRIDGE WORK.

In the making of solid gold dummies, I select a vulcanite tooth that answers all requirements. A small piece of mouldine is selected and flattened out. The tooth is then pressed into the mouldine, removed, and the impression flowed with some good inlay wax. The mouldine is then broken away and cast by whatever method desired.

Another way to form dummies is to swage up the occlusal and buccal surface by any method you desire and flow a thin layer of 22 K. solder over inside. Fine pieces of coin (silver) solder are then placed in dummy and flowed as full as desired. The bridge is soldered with 18 K. solder and also flowed over the back of dummy.—B. F. Lockwood, *D. D. S., Dentists' Record.*

A NICE WAY TO GET THE CONTACT POINT.

With the cast filling there is no longer any excuse for poor approximal contact. When the filling has been cast, the point of contact can be readily seen. A little 22-k. gold of about the size of a pinhead can be fused on this point. This gold rounds out into a small convex surface, which would otherwise be flat. It is also a little harder than the pure gold of the inlay, and therefore insures longer life to the inlay, without faceting.—L. E. Custer, *Pacific Dental Gazette.*

TO THE POINT.

No amusement can be healthy that does not give us a better heart for living.

If your virtues are writ in heaven they will be visible on earth without a telescope.

Much so-called religious effort is an attempt to make others feel as bad as we do.

It is better to help one lame dog than to waste all your powers talking about loving everybody.

The thing that worries some saints is that God seems to be doing things without consulting them.

Many a man thinks he is sure of heaven because he is so well satisfied with what he hasn't done here.

The people who cry for practical preaching are the first to demand "the simple gospel" when they get hit.

Many a saint would have less trouble wrestling with the devil if he would get out and wrestle with a ball for an hour or two.—*Chicago Tribune.*

A HINT IN TAKING A BITE.

The bite for a full denture in a patient who is wearing a full plate on the opposite jaw is taken conveniently and without unnecessary annoyance to the patient by building the wax rim on the wax base-plate as usual, trying the wax in the mouth, and trimming it to the proper form. Instead of building more wax on the rim to obtain the impression of the teeth on the plate, the wax base-plate and the denture are removed from the mouth without disarranging them. This may be accomplished by sealing the wax to the teeth at two or more points with a hot spatula while the patient's jaws are closed in their correct relation. Take the case to the laboratory, place the model in firm position in the base-plate, and flow melted wax around the occlusal surfaces and the cutting edges of the teeth on the plate. This will produce the desired impression on the wax, and the correctness of the bite may be verified by removing the plate from the wax, placing the wax base-plate and the denture in the mouth and having the patient close the jaws. The various advantages of this method need no further explanation.—*Pacific Dental Gazette.*

SCREW PINS IN COMBINATION WITH SILICATES.

In June of last year, I met Dr. Bodecker, of Berlin, and when I asked what they thought of silicate cements over there he said they used them whenever there were four walls to a cavity. Such statements encouraged me to further experiments.

Unfortunately some of the anterior cavities do not have four walls, and so, for experimental work, I prepared some of these cavities in extracted teeth. In these screw pins of German silver were inserted to help strengthen and retain the fillings as we do for restoring incisal angles with gold. When filled and polished they seemed so strong that I tried some threaded screws in patients' teeth, and it is gratifying to state that these incisal restorations are so far holding their own as well as porcelain would in the same cavities.—L. P. Hall, *Register*.

BANDED CROWNS.

To me a crown made without a band flavored of careless dentistry until recently, but as I go deeper into pyorrhea and prophylactic work I see less use for a banded crown, for in a majority of cases there is always more or less irritation until the gum tissue has receded to the top of the band. It is impossible, in a majority of cases, to properly treat for pyorrhea, a root which wears a banded crown.—Frank H. Skinner, *Review*.

REMOVING DRUG STAINS.

Vinegar or oxalic-acid solution will do the work satisfactorily. The vinegar, especially, leaving the skin soft and pliable, and entirely free from the harshness which the plaster leaves after washing the hands in plain soap and water.—Miles F. Porter, *Journal Magazine*.

SODA FOR STERILIZING ROOT CANALS.

To sterilize root canals before filling, a solution of 50 per cent of caustic soda may be applied. Care must be taken not to bring it in contact with the gums or the lips, on account of the strongly caustic action of the soda. It is not necessary to dry the root canals with hot air. It suffices to carefully clean the canals with cotton dipped in alcohol and finally in chloroform.—*Les Annales Dentaires*.

ORTHOFORM, ITS EFFECTS, PROPERTIES, AND USES.

It is a white crystalline powder, of weak acid, reaction, slightly and very slowly soluble in water, freely soluble in alcohol, ether and chloroform, and is without odor or taste. Upon the tongue, orthoform produces at first no apparent effect, owing to its low solution; after a minute a gradual numbness is noticed, and the limited locality loses its wonted keen sensibility to pain. When exhibited in dry powder it is practically non-poisonous—internal dose 0.06 to 0.65 gm. (gr. 1-x), and may be used locally *ad libitum*, but when applied freely in solution of ointment it might induce some trifling unpleasant sequelae. It possesses some antiseptic and anesthetic properties, and is unquestionably a most distinguished analgesic; it is accordingly indicated in severe burns and scalds, ulcers of the tongue and lips and of other parts; to relieve the pain after extraction of teeth; in pyorrhea pockets, before and after operation, and it is especially effective in reducing the interminable agony of "dry pockets." In the latter case, wash out with a syringe and warm water, then gently place in the socket a pledget of loose cotton wool holding in its meshes as much of the powder as they can carry; and the erstwhile suffering patient will be indeed truly grateful. The application need not usually be repeated for a day or two, as the beneficent effect of the drug is prolonged, mainly owing to its slow solubility.—*J. S. Cassidy, Dentist's Magazine.*

ALUMINUM, TO GIVE A SATIN FINISH.

There are two methods in use to give aluminum a satin finish, the chemical and the mechanical. The chemical: First remove the grease by dipping in benzine, then dip in a solution of caustic soda or caustic potassa (potassium or sodium hydrate) strong enough to blacken the metal. Remove the article from this bath and dip in a mixture of acids, one part sulphuric and two parts nitric, and finally in a mixture of equal parts vinegar and water, and dry in hot sawdust. The mechanical method is by the use of a sand blast machine, the sand used being very fine. By holding the aluminum article in the stream of fast moving sand a lasting and very beautiful mat surface is produced.—*Work*, March, 1909, page 350..

MEETINGS

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

The twenty-eight annual session will be held at Denver, Colorado, on Monday, August 1st, 1910, commencing at 10 a. m.

Hotels and railroad rates will be given in a later issue.

J. J. WRIGHT, D. D. S.

President.

Wells Bldg., Milwaukee, Wis.

CHARLES A. MEEKER, D. D. S.

Sec'y. and Treasurer.

29 Fulton St., Newark, N. J.

INDIANA STATE DENTAL ASSOCIATION.

The fifty-second annual meeting of the Indiana State Dental Association will be held in Indianapolis, May 17-18-19, 1910, at the Claypool Hotel. This promises to be a great meeting.

OTTO U. KING, Secretary.

Huntington, Ind.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS MEETING.

The twenty-eighth annual session of the National Association of Dental Examiners will be held at the new Savoy Hotel, Denver, Colo., commencing Monday, August 1, 1910, at 10 a. m. The rates will be \$2 per day for one and \$3 per day for two persons in room, European plan; large room for one or two, with private bath, \$4 and \$5 per day. Meeting and committee rooms at the service of the Association free and every accommodation extended.

An early mail reservation is requested, the time being the busy season. A full representation from every state in the United States is earnestly desired.

J. J. WRIGHT, D. D. S., President,

Wells Building, Milwaukee, Wis.

CHARLES A. MEEKER, D. D. S.,

Secretary and Treasurer,

29 Fulton Street, Newark, N. J.

CELEBRATION IN HONOR OF DR. G V. BLACK.

The Chicago Odontographic Society has arranged for a great meeting, manufacturers' exhibit, clinic and banquet, to be held on

Friday and Saturday, January 28th and 29th, 1910, and a cordial invitation is hereby extended to all ethical practitioners to be present on these occasions.

Exhibitors' clinic, January 28th, 1910, all day, at the Chicago College of Dental Surgery, corner Wood and Harrison streets. Meeting January 28th, 1910, at 8 p. m. in Handel hall, 40 East Randolph street. Essayist, C. N. Johnson, M. A., L. D. S., D. D. S., subject, "The Selection of Filling Material and Methods of Inserting, When Temporary Work Need Not Be Considered." The discussion will be opened by prominent men from all sections of the country.

Clinics, Saturday, January 29th, 1910, all day, at the Chicago College of Dental Surgery, by operators of national reputation.

Banquet—As a fitting climax to a great meeting, we will all unite in a "testimonial banquet," to a great man, whom we all love to honor, Dr. G. V. Black. The banquet will be held in the gold room of the Congress hotel, on Saturday evening, January 29th, 1910, at 7 o'clock. Information regarding meeting or banquet will be furnished by any officer of the society or by addressing the clinic committee, H. N. Orr, A. F. James, J. E. Schaefer, C. M. Cahill, Geo. N. West, chairman, 100 State street, Chicago.

THE G. V. BLACK DENTAL CLUB CLINIC.

It is a pleasure to announce that the program is almost prepared for the Annual Clinic of the Club, which will be held in St. Paul on Feb. 24th and 25th, 1910.

The members of the Club will make operations on the first day of the clinic, while the second day's operations will be made by the members of other study clubs.

Essays will be read by Drs. Barnes of Seattle, Chappel of San Francisco, Friesell of Pittsburg, C. N. Johnson of Chicago, and C. E. Woodbury of Council Bluffs, Iowa.

Thursday evening Dr. G. V. Black of Chicago will deliver a lecture which will be illustrated.

The profession generally is invited to attend the meeting. The program for the clinic will be published later.

For further information, address,

R. B. WILSON, Secretary,
409-10 Am. Nat. Bank Bldg.,
St. Paul, Minn.

MONTANA STATE DENTAL SOCIETY.

I am pleased to announce that the next annual meeting of the Montana State Dental Society will be held May 6-7, 1910, in the city of Great Falls, Montana. Preparations are making for a good program and the indications are that it will be the best meeting of the sort that the profession of the state has ever held.

Sincerely,

DR. R. L. SPAULDING, Secy.-Treas.

IOWA STATE DENTAL SOCIETY.

The forty-eighth annual meeting of the Iowa State Dental Society will be held at Des Moines, May 3-4-5, 1910. Besides an especially strong program, plans are being made for a large dental manufactures' exhibit. Display space free of charge.

W. G. CRANDALL, Secretary,
Spencer, Iowa.

INSTITUTE OF DENTAL PEDAGOGICS.

The Institute of Dental Pedagogics concluded its annual convention at Toronto, Ont., after being in session three days. December 30th the following officers were elected: Dr. J. A. Byram, Indianapolis, president; Dr. M. Gallie, Chicago, vice-president; Dr. B. E. Lecher, St. Louis, was made a member of the executive committee.

ST. LOUIS DENTAL SOCIETY.

The St. Louis Society of Dental Science at the December meeting elected the following officers: C. O. Simpson, president; G. E. Hourn, vice-president; J. P. Marshall, secretary; C. S. Dunham, treasurer; H. W. Lansberg, curator.

Executive committee: E. P. Dameron, Richard Summa, A. H. Winklemeyer, W. E. Wilson and W. B. Arthur.

Advisory council: G. A. Bowman, B. L. Thorpe, A. H. Fuller, D. O. M. Le Cron, Adam Flickinger, W. E. Brown and E. E. Haverstick.

J. P. MARSHALL, Secretary.

PERSONAL AND GENERAL

Fire.—A big fire in Sylvania, Ga., which destroyed a great part of the business district, wiped out the office of Dr. W. B. Mell with a loss of \$1,000.

Dentist Bankrupt.—A dentist of Ogden, Utah, filed a petition in voluntary bankruptcy December 29 in the Federal court. Assets, \$152; liabilities, \$2,151.49.

Whitney-Hogue.—Dr. H. S. Whitney, a popular dentist of New Matamoras, W. Va., and Miss Helen Hogue, of Vincent, Ohio, were married December 15.

Dr. B. Frank Gray, formerly of Colorado Springs and Denver, is permanently located in Los Angeles. As heretofore, his practice will be limited to orthodontia.

Dentist-Pugilist Retires.—Leach Cross, the well-known prizefighter, has again retired from the ring and meets all his friends with the "Never Again" greeting. Leach is now Dr. Lewis Wallach, the dentist.

Murray-Gibson.—The wedding of Miss Mildred Gibson, a school teacher, to Dr. J. E. Murray, a Denver dentist, was performed at the home of the former in Greeley, Colo., December 23. Dr. and Mrs. Murray will make their future home at Denver.

Dentist Swindles Many.—After contracting for some thousand dollars' worth of work and collecting in advance for the greater part of it, a dentist of Sedalia, Mo., when his patients could no longer be put off, secretly sold his office outfit and left town at night.

Dental School Burned.—Millard Hall, the fine building in which the dental department of the University of Minnesota has been housed since its erection in 1893, was destroyed with a loss of \$75,000 December 24, the cause of which is said to have been defective wiring.

Injured by Explosion.—Dr. H. Newton, of Kansas City, and his assistant, Mrs. W. Kimberling, met with a serious accident when a gasoline blowpipe with which he was working exploded, throwing the burning fluid over their clothing. Both are in a critical condition.

Dental Company Incorporates.—The Dental Denture Improvement Company, Newark, N. J., manufacturers of dental appliances, instruments and materials, capital \$50,000, was incorporated December 30, with N. A. Bornstien, H. A. Gollobin and Clara Gollobin as incorporators.

Opens New Building.—Under auspicious conditions and with bright prospects for future success, the Louisiana State College of Dental Surgery opened the doors of its new building November 27. Although this was the date of the formal opening, the institution has been in active operation since October.

Dies in Dental Office.—Stricken with heart failure brought on by the administration of chloroform, Mrs. Harry Peet, of Oneonta, N. Y., died almost immediately after regaining consciousness in a dental office in Watertown, N. Y.

Fire.—What threatened for a time to be a serious fire broke out in the dental office of Dr. R. J. Humphrys, Grand Rapids, Mich., December 27. The dentist lost entirely his office fixtures and instruments, and the loss is estimated at several thousands.

Fossil Teeth Recovered.—A Washington naturalist has made a singular collection of fossil teeth from drug shops in China, where they are sold under the name of dragons' teeth as "cure-alls." Upon examining them it was found that they were remains of many species of extinct animals.

Removals.—Drs. R. B. Schrock, from Topeka, Ind., to South Bend, Ind.—J. C. Patten, from Fernandina, Fla., to Jacksonville, Fla.—L. M. McCormick, from Potter, Kans., to Osceola, Neb.—O. J. Kent, from Sheboygan Falls, Wis., to Sheboygan, Wis.—D. Ryan, from Algoma, Wis., to S. Kaukauna, Wis.

Dentist Stabs Insulter.—Enraged beyond control by the vile names and a blow delivered by a brother of his former fiancée, Dr. E. W. Scott, San Francisco, Cal., drew a dagger and inflicted two serious but not fatal wounds upon him, December 20, and as a result, although it was proven by the testimony of witnesses that Dr. Scott was justified, he was booked on a charge of assault.

Removals.—Dr. R. B. Schrock, from Topeka, Iowa, to South Bend, Ind., Los Angeles, Cal., loss \$100.—D. J. Thorpe, F. P. Cronkite, M. B. Crume, C. A. McNutt, M. M. Fitzgerald, B. G. Wenker and A. R. Greenfield, St. Joseph, Mo., loss between \$15 and \$75 each.—Herr & Brown, Bloomington, Ill., loss \$50.—E. G. Elis, Jefferson City, Mo., loss \$100.—J. H. Murphy, Temple, Texas, loss \$100.—W. J. Cummings, Wheeling, W. Va., no loss given.—H. M. Bell, Houston, Texas, loss \$50.

Elephant's Tooth Filled.—Gunda, the big elephant in the Bronx Zoo at Kansas City, enjoyed the delightful experience of having a tooth filled December 24 as an appropriate Christmas present. For several weeks he had been more than irritable, and when he refused to eat it was decided to hold a clinic, as the result of which it was found that it was toothache which affected him, so with the assistance of three keepers and innumerable ropes, straps and chains, an ax, a file and about half a pound of cement, the delicate operation of filling the beast's tooth was accomplished, which resulted in his complete recovery.

Doyle-Guenther.—The marriage of Dr. M. H. Doyle of Belle Plaine, Minn., and Miss Katherine E. Guenther, of the same city, was celebrated in St. Paul, Minn., Decmbr 6. Th doctor is a graduate of the dental department of the University of Minnesota.

Adds to Field of Painless Dentistry.—By combining atropine, carbolic acid gas and adrenalin with a very small per cent of novocain, Dr. C. L. George, of Elkhart, Ind., has produced an anesthetic for which are claimed all the results of a strong solution of cocaine, minus its dangerous toxic and irritating effects. In his experiments of extracting molars Dr. George has met with remarkable success, it being found that the gums heal very rapidly.

New Dental School Opened.—The formal dedication of the new dental addition to Harvard University took place December 8. Addresses by the men who have been prominent in its erection were features of the occasion. The new dental school is said to be the finest building in the world for the use to which it is to be put, containing model libraries and laboratories, and its style of architecture is harmonious with the other buildings which form the medical school.

Battles with Strange Bird.—Dr. I. W. Wienburg, a dentist of Atlantic City, N. J., after battling for nearly a half hour with a monster bird which had dropped exhausted in his yard, succeeded in capturing it only after he had received painful wounds and had made recourse to a net. The bird was evidently, from its description, a habitat of Florida or South America which had been blown northward by a big storm which occurred November 23.

Movement for Care of School Pupils' Teeth.—The progress in the movement for the free inspection and compulsory care of the teeth of pupils in schools throughout the country has been very rapid during the past month and has spread to all parts of the country. In many cities actual practice work has been begun. Under the stimulus of the new movement various public institutions in many parts of the country have joined hands with the public-spirited dentists who have volunteered their services, alarmed at the fact that 98 per cent of the grammar school students of the country have defective teeth. Free clinics have been established in the following cities for this purpose: New York; Hancock, Mich.; Princeton, Ind.; Youngstown, Ohio; Massillon, Ohio; Philadelphia and Denver. A series of lectures is being carried on in the public schools of New Orleans.

1. The first part of the document is a list of the names of the persons who have been appointed to the various offices of the city.

2. The second part of the document is a list of the names of the persons who have been appointed to the various offices of the city.

